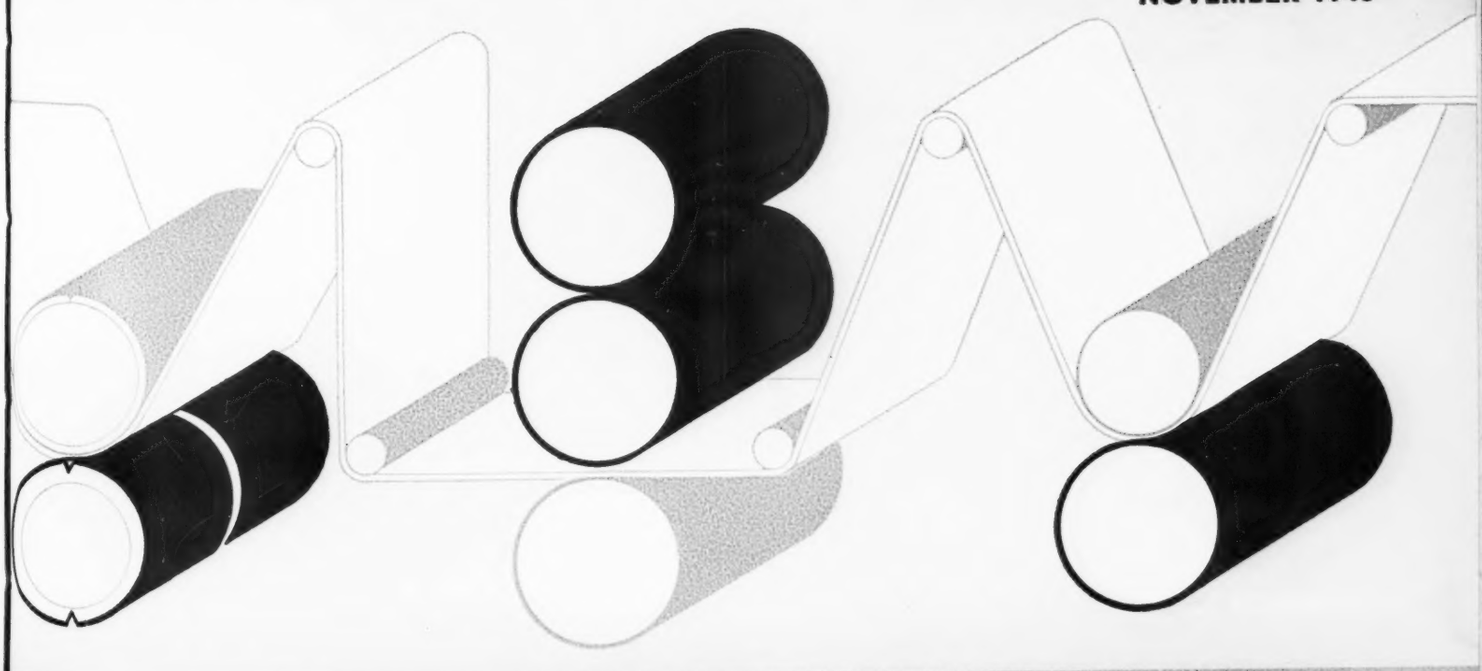
Printing Equipment Engineer

NOVEMBER 1946



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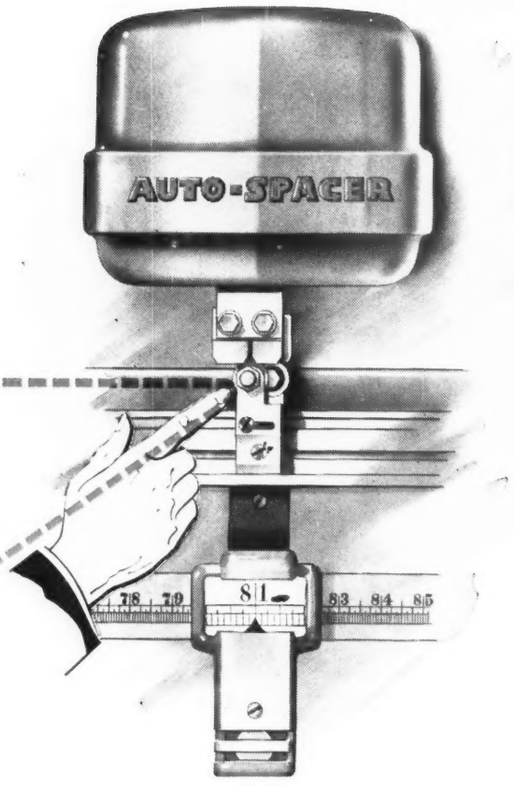

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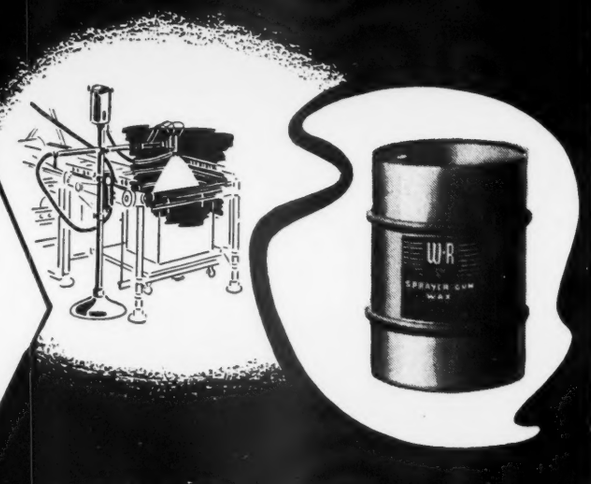

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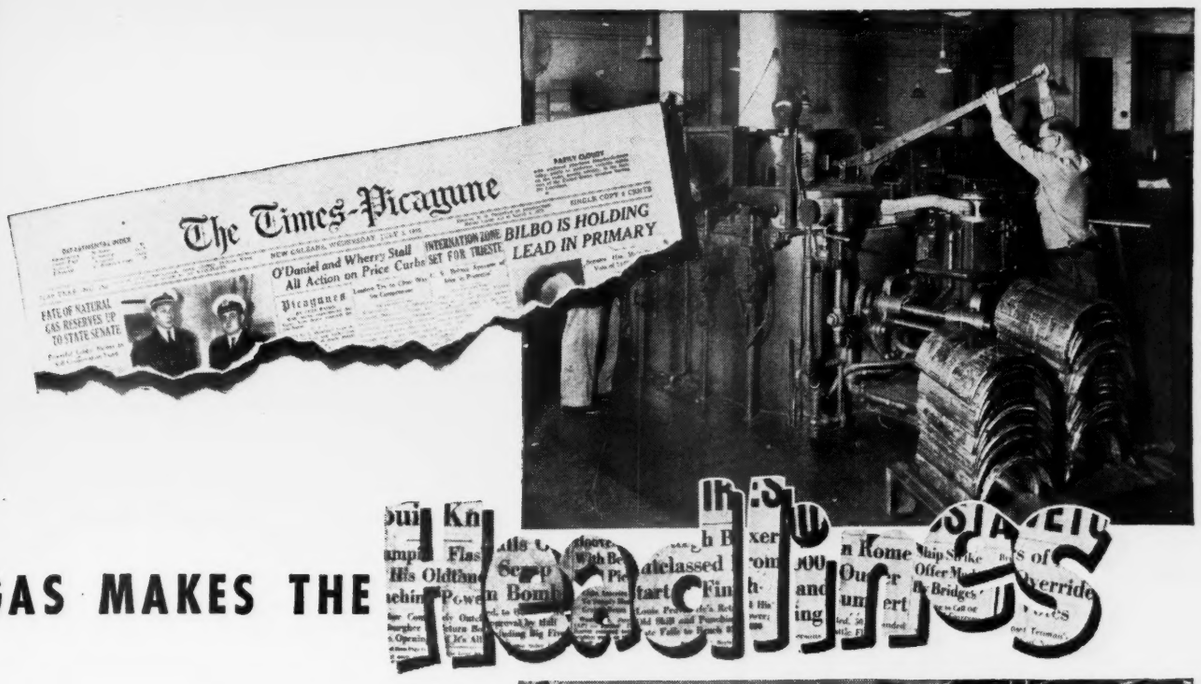
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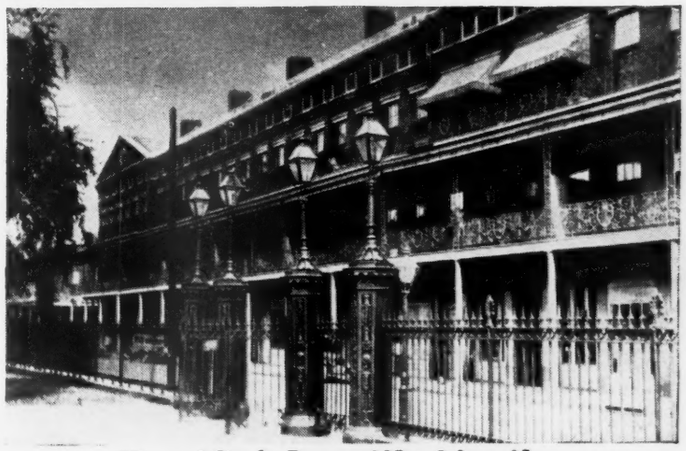

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PRINTING EQUIPMENT *Engineer*

Volume 73 **Number 2**

A technical publication for the mechanical executive responsible for printing production, equipment and supplies in the commercial, magazine, private plant and daily newspaper field.

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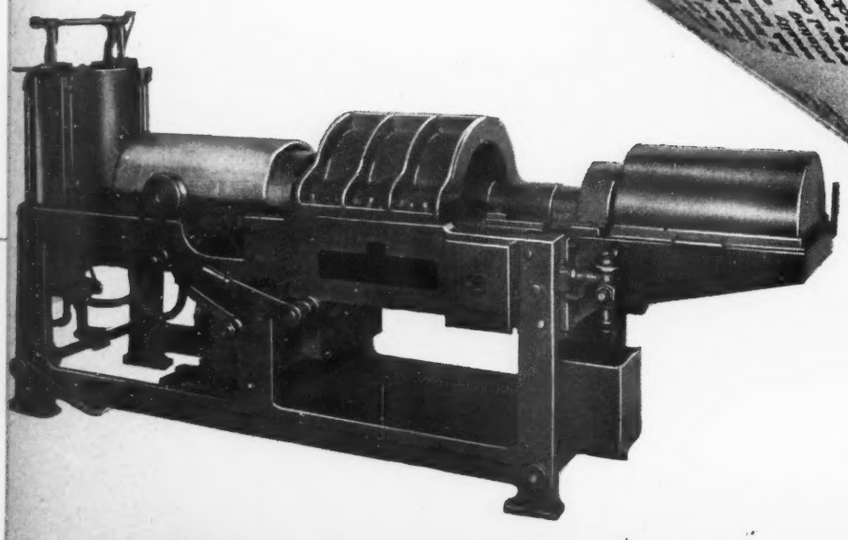

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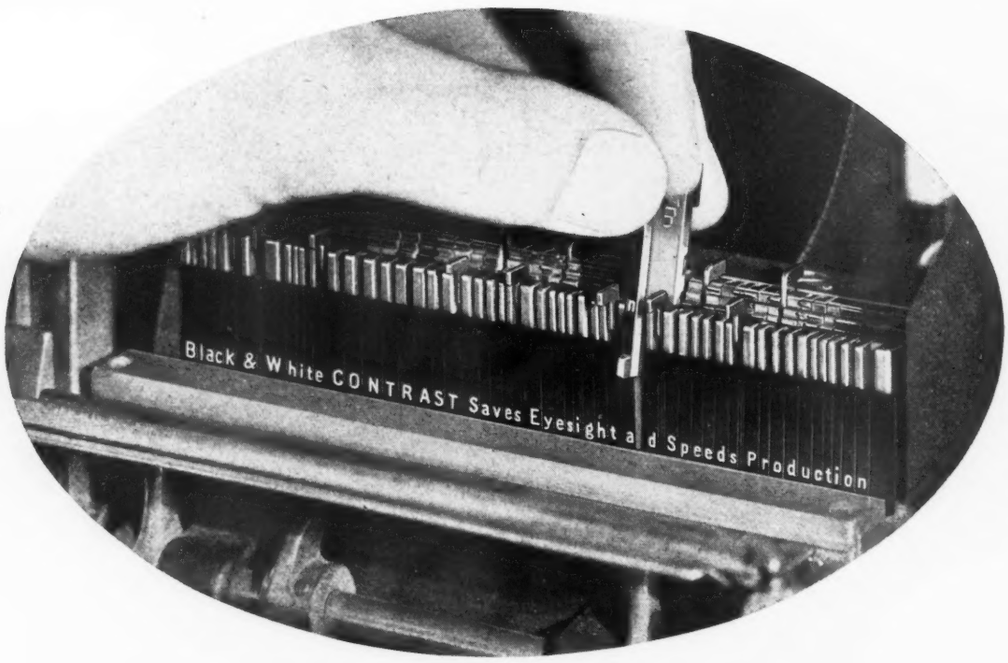

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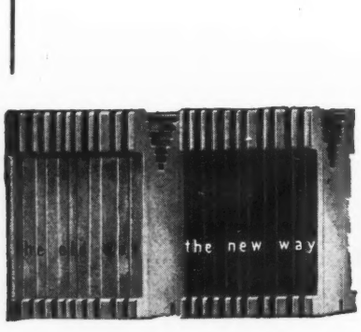

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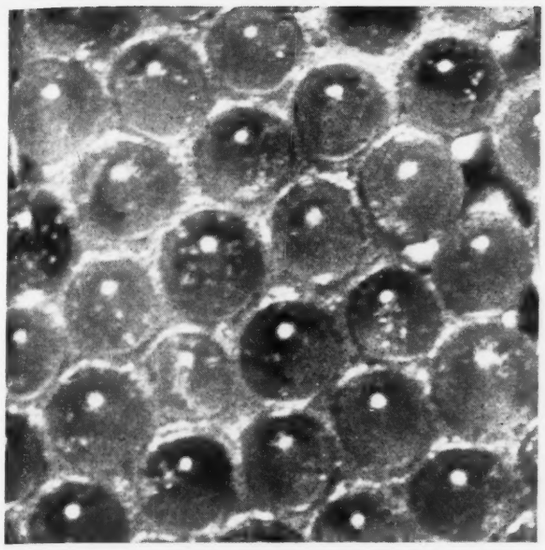


This photomicrograph of MMM fabric drawsheet for blanket cylinder of newspaper printing presses shows approx. four glass beads per sq. in. The draw sheet is coated with 50,000 glass beads or spheres per sq. in.

(Photo by Yeager)

First Impression Newspaper Printing Free from Offset

By F. L. YEAGER*

**Production Manager, Indianapolis* Star. *Address delivered before the Great Lakes Newspaper Mechanical Conference, Claypool Hotel, Indianapolis, Ind. October 29, 1946.*

I WANT to report upon the development of a remedy for the improvement of first impression printing. Let me state that this development, as well as a considerable amount of previous experimental work, has been sponsored by the management of the Indianapolis *Star*.

(*Editor's Note*—At this point Mr. Yeager stated experimental work was being continued in association with Minnesota Mining & Mfg. Co. In the near future it is hoped to have press equipment provided with a new draw sheet so that the *Star* can furnish readers and advertisers with a newspaper that is well printed on both sides of the sheet.)

The Problem

For many years, men interested in improving the physical appearance of the daily newspaper have conducted experiments in attempts to eliminate the so-called offset on first impression printing. Much time and effort has been put into these experiments. The problem was a difficult one because of the rapidity of newspaper press operation. The time interval between first and second impressions is only a fraction of a second. Paper webs travel at surface speeds ranging from 1000 to 1500 f.p.m. At 1100 f.p.m., the time interval is approx. ⅓ sec., between the printing of the first and second impressions, on a press designed with 6 ft. of web between the first and second impressions. This time will vary on presses with more or less web travel between cylinders. Since newspaper printing inks are supposed to dry by absorption, *i.e.*, the vehicle must be absorbed into the paper itself, this extremely short time interval between first and second printings of the two sides of the web leaves something to be desired with respect to the time necessary for the web to absorb the vehicle.

For the uninitiated, it should be understood that between the printing of the first and the second sides of the web, the ink on the first impression cannot possibly dry or set by the time the web goes under the printing pressure of the second side. Consequently, some of the ink from the first impression printing (being still wet) is transferred or offset onto the face of the blanket or drawsheet on the second impression cylinder. In only a very few minutes the face of the second impression blanket accumulates enough ink by offset that it resembles in a lesser degree the face of a sheet of carbon paper. The pressure of the second printing, applied to the web and with the web against this dirty blanket face, causes this dirt to be transferred from the blanket face to the first impression side, in the pattern of the pressure applied. Thus type matter on the second printing appears to be showing through on halftone areas on the first impression side, and will disfigure the screened areas on the first impression side. This offset is aggravated by the fact that it is virtually impossible to keep the paper web "tracking" constantly so that each printed page will register exactly with the ink offset onto the blanket by the previously printed pages.

Definition of Terms

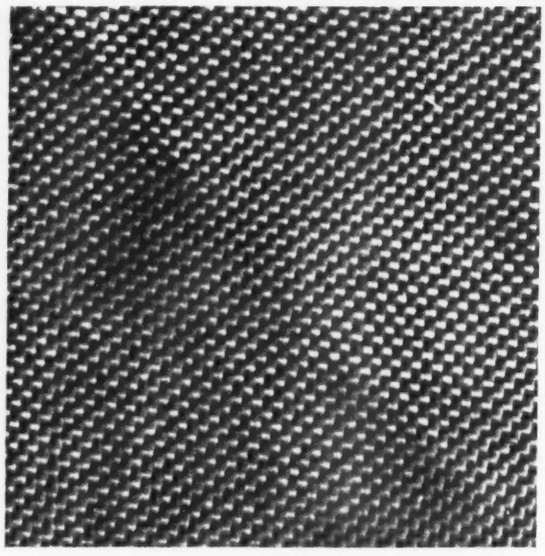
Having stated the problem of first impression offset, I want to define several terms used in newspaper printing so that no one will be confused by the expressions "Offset", "Show-through", "Strike-through" and "Paper transparency". It should be understood that the method discussed here reduces "First Impression Offset" (or "smut" as it is termed by some). It does not, however, eliminate "Show - through", "Strike - through", nor does it overcome the printing disfigurement caused by "Paper transparency".

The definition of "Show-through" in newspaper printing refers to the printed image on one side of the paper which is more or less visible from the opposite side of the paper. "Show-through" is caused by paper transparency or the translucent quality of the paper.

"Strike-through" (or penetration) in newspaper printing refers to the disfigurement of the printed image on one side of the sheet which is caused by the ink vehicle (oil) penetrating partway through one side of the web and being visible from the other side. In aggravated cases, it appears that part of the pigment has been carried through with the vehicle.

In discussing the development of a method for reducing "First Impression Offset" in newspaper printing, I make no claim to the elimination of "Strike-through" as defined above, nor to the elimination of "Show-through" which is caused solely by paper transparency.

F. Lester Yeager, Production Manager, Indianapolis (Ind.) *Star*.



Magnified section of glass cloth used by Mr. Yeager early in 1945 in experimental way as a newspaper printing press blanket cylinder drawsheet to eliminate first impression offset. In the cloth there are 75 threads per inch. This enlargement shows 16 threads per inch.

(Photo by Yeager)

Early Experimental Work

At this point, the speaker discussed early experimental work done by himself and others in attempts to eliminate first impression offset. Some of these were attempts to cure the trouble by tension adjustments of the web, cellophane coated tympan paper utilized as a draw sheet, and experimental work with draw sheets fabricated with a facing as near like cellophane as it was possible to produce. He said all of these were unsatisfactory.

Mr. Yeager then said he studied the water-base ink experiments originated by Auburn Taylor, Pressroom Superintendent of the Charleston (W.Va.) *Gazette*, but because of the limitations of his equipment for obtaining maximum results from the ink, he gave up further experimentation. Mr Yeager stated Mr. Taylor deserves a lot of credit for the painstaking research and his valuable contributions toward better newspaper printing.

The speaker then continued by relating heated-ink experiments as follows:

Heated Ink Experiments

The next experiment in the *Star* plant was with heated ink. Our plant electrician worked out a method of heating one of the Goss portable one-page fountains. A carbon company made up a special ink to be run hot. The results showed little improvement. Other considerations were that the fountain heating equipment would have been undesirable in the summer months with heating apparatus on each of the press units. Another objectionable element was the fire hazard. The vehicle for this particular ink gave off a yellow vapor when heated. The vapor was highly flammable. Any further experimentation with the heated ink was discarded in a hurry.

Copper-mercury Draw Sheet

Still another experiment went back to the idea of a blanket face that would not accept ink deposits by offsetting from the first impression side of the web. A cloth draw sheet was sprayed with copper. The copper was then coated with mercury. Ink will not stick to mercury. But the abrasive action of the paper coming in contact with it under printing pressure will cause the mercury to wear off rapidly. The mercury transferred from the drawsheet would have been carried away by the paper web. Undoubtedly, this would have been dangerous to anyone who might use a newspaper in which to wrap a lunch. The mercury faced draw sheet was abandoned.

The All-tone Principle

At the time steam-set inks were being tried in practical plant newspaper production, another experiment was in the making at the Indianapolis *Star* plant. This idea was related to the principle of the All-tone plate. Those who have printed with these plates know that the all-over pressure applied by them on the second impression cylinder makes the first impression printing which backs it up about as good as the second impression printing. I went to work on the idea of applying this all-over pressure principle in another manner. Obviously, it would be impractical to make all the plates on the second impression cylinders like All-tone plates. The time element, expense and engraver shortage would be detrimental. In addition, the All-tone impression principle could not be utilized by small town newspapers not having photo-engraving departments.

The first attempt to apply the all-over pressure on the second impression cylinder was made by mounting a hard rubber roller in such a way that it would operate against the web on the second impression cylinder just before the web reached the pressure point of the second printing. Performance of the hard rubber roller showed some promise but not enough. When sufficient pressure was applied to show a pronounced improvement, the rubber roller would tend to drop into the slot and cause sheet breaks. A better means, even closer to the All-tone principle was then devised. A steel roller having a knurled face (similar to the face of a halftone plate with highlight dots all over it) was then tried out. The highlight dot face on the steel roller was superior to a steel smooth-face roller. It applied concentrated pressure without the total all-over pressure necessary to the steel smooth faced roller.

Initial tests in the pressroom were encouraging. One of the rollers was manufactured by the Goss Printing Press Co., and was mounted in one of our Goss units. A quick-lever method of lifting the roller off contact with the blanket cylinder to facilitate leading the paper web into the unit after a web break was devised. Because of the difficulty in securing roller and ball bearings during the latter months of the war, this auxiliary roller was provided with bronze bushing type bearings.

Our operating experience with necessary pressure on the steel roller was that the necessary pressure caused the bearings to heat up so that it was possible to run it only for 5 or 10 minute periods at a time. Our daily printing speed is 36,000 per hour and up to 42,000 per hour on the Sunday run. The halftone-faced steel roller did bring about a decided improvement in first impression printing and appeared to hold more promise than any previous experiment. Its success can be explained by stating that first impression offset is ink *and* perhaps ink-and-dirt particles picked up in the *pattern of the pressure* applied by the plate on the second impression printing. When pressure is applied *all over* the page area, as when type is screened into a highlight halftone background, the pressure is applied to the paper web evenly in an all-over pattern. The paper web itself thus becomes a means of cleaning the second impression blankets or draw sheet. The ink and dirt are carried away with each cylinder revolution, rather than being allowed to accumulate on the cylinder packing and being picked up when the register changes slightly. This effect can be noted in any newspaper when a halftone on the second impression cylinder is directly backed up with a halftone on the first impression cylinder. When this happens, one looks as good as the other and there is little difference in the appearance of the halftone on first and second impressions. This knurled steel auxiliary roller with face similar to highlight halftone applied that same all-over pressure and accomplished the same result.

After this test had been made, a similar test was tried in another plant but with a rubber roller. Comment by an executive of that newspaper at one of the recent mechanical conferences was to the effect that while it did improve first impression printing, it broadened the halftone dots and gave the appearance of the first impression being cleaner, but not a faithful reproduction in regard to dot sizes. This result was probably true in that plant, but we did not find such detrimental results with the use of the knurled steel roller. The steel roller probably had something to do with the

difference, and the difference may have been due in part to the fact that we use about the hardest packing obtainable. As a result of the harder packing, the knurled steel roller could not force the paper web down into the blanket very far. In any case, the harder packing and steel roller does not have the effect which is found in the use of a rubber roller to apply the all-over pressure.

Glass Cloth Experiment

While in New York City early in 1945, I saw a 100% glass table cloth which was claimed to be fire proof. It seemed this might be ink resistant. On returning to Indianapolis I secured some of this glass cloth. Draw sheets were made from it and put on the press. Great improvement in first impression printing was shown. The woven glass cloth, however, was too fragile to be practical. The draw sheet lasted less than one night's run. The printing pressure of the plates fractured the glass fibres. Subsequently, it occurred to me to try out a home-made draw sheet fashioned from a glass beaded movie projection screen. This screen surface contained about 5000 glass spheres per square inch. The screen material was too coarse inasmuch as it would not have printed good solid blacks.

Inception of Glass Bead Idea

Still hoping to obtain better bearings for the steel knurled roller discussed above, I attended the 1945 Great Lakes Newspaper Mechanical Conference in Cleveland. While there I met Dr. W. E. Sohl of the Minnesota Mining and Manufacturing Co. of St. Paul, Minnesota. We discussed all the previous experiments I had made. It was pointed out to him that I believed the first impression problem could be solved through a draw sheet or blanket face that would not accept ink, dirt or other particles by offset. This would be a draw sheet that would be more or less self-cleaning. It was explained to Dr. Sohl that I would like to work with his company in developing a draw sheet with glass bead face such as the company was already producing on other coated products. Dr. Sohl arranged with MMM and M. L. Gebhard was assigned to work with me.

1946 Glass Bead Experimental Work

Our first experiments with the glass beaded draw sheets were made in January 1946. The first draw sheet with glass bead face showed the best result of any of the previous experiments with the first impression problem as already related. Subsequently during 1946 other experiments were made all with excellent results. We have tried various fabrics, have checked production records to determine the life of the various fabrics, and have checked the printing quality for many months now.

Performance of Glass Beaded Draw Sheet

As of August 29th, the last set of the glass beaded draw sheets has been on our presses four months without change. About 10,000,000 papers or sections have been printed on them during that time. The circulation of the Indianapolis *Star* is in excess of 166,000 net paid daily and in excess of 210,000 net paid Sunday. These figures, however, do not indicate how many sections were run on the one press equipped with glass beaded draw sheets as of August 29th. For instance, each of two presses run over 105,000 Sunday Society sections, 28 to 32 pages. Then they print about 39,000 main sheets of 32 pages on each of two presses. Then on the Sunday City edition each of three presses, running collect, print about 87,000 sections collected into half that many 48 page papers per press. Thus while Sunday circulation is in excess of 210,000 net paid, the one press equipped with glass beaded draw sheets prints a total of approximately 231,000 sections on Saturday night alone.

The new type of fabric draw sheet in use at the *Star* is coated with tiny glass spheres—approximately 50,000 spheres to the square inch. The thickness of the draw sheets is about 0.025 in. Due to the glass bead construction, the face of the draw sheet stays clean enough to print first impression pages which approach, second impression printing in quality. The glass beaded draw sheets now on our presses have been washed only once in six months, and some of them have never been washed. One other outstanding advantage is that the face of the glass beaded draw sheets does not show any marks from leaders.

Halftone dots printed on the paper are shaped exactly like those on the stereotype plate. Frequently, with use of conventional type draw sheets, the halftone dots on the first impression side of the web have a shadow effect smeared by offsetting from the second impression blanket. This offset first impression shadow effect is eliminated by the use of the glass beaded draw sheets.

As has been stated above, thickness of the glass beaded draw sheet is approximately 0.025 inch. Total thickness of the press packing, including the glass beaded draw sheet, is approximately 0.166 inch. The underpacking is of the non-felt type and is as hard a packing as it is practical to use.

Mottling and Other Ink Problems

Abstract from address delivered by G. L. Erikson, Executive Vice President, Braden-Sutphin Ink Co., Cleveland, before convention of the Intl. Association of Printing House Craftsmen, Montreal, Can., September 1946.

MOTTLING—This is one of the most troublesome of the ink makers' problems and yet it is probably the least understood. The body of the ink, the grinding, the pigments used, the vehicles, the amount of ink carried, the pressure used in printing, the rollers, the atmosphere, and a number of other conditions affect mottling. It is usually a process of guessing and doping until the proper combination of conditions results in a smooth laying print.

FILLING OF SCREENS—This condition may be caused by poor grinding of ink, by the use of poor pigments which do not disperse properly, by too long a body in the ink, by shallow plates, by poor rollers, or improper make-ready or by simply carrying more ink than the screens will handle. Often the paper can be at fault, as if the coating is too soft or not properly bound to the body stock, excessive picking will result which will cause filling. The cure in this case is a softer ink, or a "dope" to reduce the tack.

CAKING ON PLATES—"Caking" or "piling" of ink on plates may be caused by a number of conditions in the ink itself, or by poor rollers, paper, make-ready or by the printing plates. Softening the ink, or adding long varnish or a carrier such as Alumina hydrate will usually correct this condition.

TRAPPING—This is a problem affecting multi color presses only and is generally a question of adjusting the "tack" of the inks used, so that the first color is "tackiest" with each succeeding color softer than the preceeding one. It is very important that the strongest possible inks be used especially for the first colors, as very thin films of ink are the easiest to overprint while wet. Don't buy your multi-color press inks on price. Proper plate making can also contribute a great deal towards good trapping in wet printing.

NAPL *devotes greater portion of convention program to current major problems — Equipment manufacturers hold symposium — Over 1000 registered at Washington, D. C., meeting*

THE National Association of Photo-Lithographers concluded a successful convention. Washington, D. C., the host city, entertained the conventioneers from many parts of the country. From the opening session on Thursday, October 3 to the closing annual banquet on Saturday October 5, there was something doing every minute. Over 1000 attended the convention sessions with about 650 enjoying the annual banquet.

Beside the technical sessions there were also sight-seeing tours and card parties for the ladies. A cocktail party for members of litho clubs and registered members of the convention was sponsored by the Litho Club and the Commercial Lithographers of Washington. All sessions and exhibits were held at the Shoreham Hotel while the annual banquet was held at the Statler Hotel.

Exhibitors showed much new equipment such as cameras, rollers, film, line-up tables, chemicals, ink, arc lamps and plate making equipment. The list of manufacturers includes: American Type Founders; Ansco Div. of General Aniline & Film Corp.; Sam'l Bingham's Son Mfg. Co.; Russell Ernest Baum; Craftsman Line-Up Table Corporation; Consolidated Photo-Engravers Equipment Co.; Dayton Rubber Manufacturing Co.; E. I. du Pont de Nemours Mfg. Co.; Eastman Kodak Co.; Electronic Mechanical Products Co.; Fuchs & Lang, Div. Sun Chemical Corp.; Godfrey Roller Co.; Hammer Dry Plate & Film Co.; Harris-Seybold Co.; Harold M. Pitman Co.; Huebner Laboratories; Ideal Roller & Mfg. Co., Inc.; International Printing Ink, Div. of Interchemical Corp.; Kohl & Madden Printing Ink Co , Inc.; Lithograph Technical Foundation; Macbeth Arc Lamp Co.; Mallinckrodt Chemical Works; Mark Specialty Co.; Miehle Printing Press and Mfg. Co.; Phillips & Jacobs; Phillip A. Hunt Co.; Roberts & Porter; Rutherford Machinery Div., Sun Chemical Corp.; Sinclair & Valentine; S. D. Warren Co.; Vasel Mfg. Co.; Zarkin Machine Co., Inc.

One of the high spots of the Convention banquet was the drawing of prizes, which ranged from fountain pens to a gorgeous Norwegian Blue Fox Fur Jacket. All prizes were donated by the supply industry. The Fur Jacket donated by Kohl & Madden Ink Co., was valued at $1,000 and was modeled on the stage before the drawing. The lucky winner (No. 44) was Mrs. Rex Howard.

Officers Elected

The following officers were elected for 1946-1947 association year: *President*, Harry E. Brinkman; *Vice President*, Charles E. Mallett; *Treasurer*, Penn R. Watson; *Executive Secretary*, Walter E. Soderstrom; *Secretary*, William J. Stevens.

Board of Directors—One Year—Allen H. Frost, Copifyer Lithograph Corp., Cleveland, O.; Raymond Blattenberger, Edw. Stern & Co., Inc., Philadelphia, Pa.; Richard H. Grant, Jr., Reynolds & Reynolds Co., Dayton, O.; Rex G. Howard, Howard Company, Peoria, Ill.; Charles E. Mallett, Rand Avery-Gordon Taylor, Inc., Boston, Mass.; A. L. Tucker, Sauls Planograph Co., Washington, D. C.; Penn R. Watson, Wm. J. Keller, Inc., Buffalo, N. Y.; Arthur C. Eckert, Columbia Planograph Co., Washington, D. C. Two Years—Henry H. Brunings, The Gerlach-Barklow Co., Joliet, Ill.; R. W. Cornelison, H. A. Rogers Co., Minneapolis, Minn.; Herbert F Johnson, Dosie & Johnson Co , Milwaukee, Wis.; J. Tom Morgan, Jr., Commercial Printers, Inc., Columbus, Ga.; A. H. Spaulding, Spaulding-Moss Co., Boston, Mass.; Sam Weil, Keller-Crescent Co., Evansville, Ind.; J. A. Westlin, The Maqua Co., Schenectady, N. Y.; Harry E. Brinkman, Cincinnati Lithograph Co., Cincinnati, O. Three Years—George C. Fetter, Jr., Fetter Printing Co., Louisville, Ky.; Victor Friedman, Crafton-Graphic Co., New York, N. Y.; Jack Hagen, Workman Mfg. Co., Chicago, Ill.; Arthur Wetzel,

The Harris-Seybold theatre marquee, with pretty Miss Evelyn Vargan of Arlington, Va., announced the premier showing of Harris-Seybold's new promotional film at the recent N. A .P. L. Convention in Washington. The new movie, "How To Make A Good Impression", in sound and color, was one of the Convention highlights.

Wetzel Bros. Printing Co., Milwaukee, Wis.; David Safran, Safran Printing Co., Detroit, Mich.; E. D. Kistler, The W. H. Kistler Stationery Co., Denver, Colo.; E. P. Doolin, Rust Craft Publishers, Inc., Boston, Mass.; J. W. Hoover, Jos. Hoover & Sons Co., Inc., Philadelphia, Pa. Directors Ex-Officio — Paul A. Heideke, Washington Planograph Co., Washington, D. C.; Merle S. Schaff, Dando-Schaff Printing & Pub. Co, Philadelphia, Penn.; A. G. McCormick, Jr., The McCormick-Armstrong Co., Wichita, Kas.; George E. Loder, National Process Co., Inc., New York, N. Y.

Harris-Seybold Film

The Harris-Seybold Co. presented a technicolor sound film on lithography at the NAPL convention. This was the first time the film was shown to the public. The film is designed to be used to enlighten buyers of lithography with some of the advantages this process offers. It is no doubt the most easily understood film on this subject yet produced. While this full sound motion picture does not deal with the technical side of the lithographic industry it does, however, show conclusively the various procedures and methods required to produce a lithographed job.

Air Conditioning in Lithography

One of the speakers at the Thursday afternoon session was B. Offen of B. Offen & Co., Chicago. Abstracted from his address is the following discussion:

WHAT is air conditioning? It is the processing and treatment of air to maintain a pre-determined temperature and relative humidity, for a specific area. In order to accomplish this, air conditioning apparatus must be able to:

a Add heat or remove heat.

b. It must be able to add moisture or remove moisture.

c. It should provide a minimum of fresh air, to assure satisfactory working conditions. You may have the desired temperature and humidity in a room, but if you do not provide fresh air, then you still do not have a satisfactory working condition. No one can do efficient work, regardless of the apparent comfortable conditions, without satisfactory ventilation.

If you have all-year temperature control, humidity control, and good ventilation, then you have a good all-year air conditioning system.

Why is air conditioning necessary in the lithographing plant? Air conditioning is an important factor in the various process rooms, paper seasoning rooms, and pressroom.

Some of the more important features of air conditioning are:

a. Chemicals. We know that practically all chemicals are influenced by temperature. Therefore, action can be hastened or retarded by a change in temperature. When chemicals are used to obtain definite reactions, that reaction cannot be controlled accurately, unless all variables are under control.

b. Coatings. A number of the materials used in coatings are hygroscopic, and are influenced by the surrounding humidity Under high humidity conditions, coatings will take on additional moisture, and when exposed to dry air, coatings will give off moisture. The coatings when exposed to etching acids, will react differently if there is a wide variation in the water content of the coating, since the oxygen of the water will have some influence on the chemical reaction. By controlling the coatings, the acids, and by maintaining uniform temperatures of all of the materials, as well as the temperature and humidity of the surrounding atmosphere, a great number of variables will have been eliminated, thus making it much easier to obtain uniform reproductions consistently.

Photo Gallery and Dark Room—Photo plates should be stored in a room under uniform temperature control. When drying films or plates, extreme care should be exercised not to dry them too fast with real high temperatures, since the hardness of the film will be affected and some of the tone values may be lost It is preferred to dry films or plates in an enclosure under moderate temperatures and constant relative humidity. Dark Rooms should be equipped with temperature controlled-developing and washing sinks. In addition, you should have available a supply of cold and warm water, so that you can maintain the correct washing temperatures.

Photo Composing and Transfer Rooms—The materials used in these departments are sensitive to temperature and humidity conditions. Constant temperatures and humidities should be maintained. Work here is very accurate, and variations of the materials will make it difficult to obtain satisfactory results. After all, if correct register is to be maintained, you must provide means to permit accurate register in the processing. The press will print what is in the plate, good and bad.

Paper Seasoning Room—The Paper Seasoning Room should be arranged independently of the pressroom, but should be adjacent to it. All of the incoming paper, scheduled for early delivery to the pressroom, should be conditioning and seasoned. There has been some extensive investigation, which proved that it is advisable to carry the humidity in the paper storage and seasoning room, 5% to 8% higher than that carried in the pressroom. It has been found that when paper is conditioned to a higher moisture content, the paper will pass through the press with minimum variation.

Pressroom—Here we enjoy the results of all of the previous efforts. Assuming the plates are satisfactory, we still have the problem of paper variation. We all have had considerable experience with wrinkling, curling, paper stretch, as well as paper shrinkage. All of these are brought about because of variations of the relative humidity in the room. Due to the dampening operation, the press moisture, plus the normal atmospheric moisture, considerably aggravates the problem for the pressroom. Therefore, the air has to be delivered at a certain condition, so that it will take up the additional moisture given up by the dampening operations, and still hold the required relative humidity.

Every effort should be made to obtain the most efficient and economical use of labor. The printed cost is made up of materials, labor, administration, and capital investment. If the job goes bad, the first item that is checked is labor cost, since the other items are reasonably constant.

The extra labor cost is generally attributed to some item of trouble in one or more of the departments. It may be poor material, paper, or press trouble, and several other items. Usually this ends up with increased labor time.

If you can accomplish the desired results, with a 5 to 10 per cent reduction in your labor cost, you have found the most efficient machine in the industry.

Cost For All-Year-Around Service

This is dependent on a number of factors, as follows:

a. The type of equipment selected; such as a packaged self-contained unit, or the more preferred commercial type of assembled unit.

b. Type of building, height of the room, general construction of building such as exposed areas, amount of glass, type of roof, and insulating value of walls and roof.

c. Proximity of the location of the air conditioning apparatus to the conditioned room.

d. Whether the area is broken up into a number of rooms or whether the area consists of one large room.

e. The amount of horsepower, light, and number of people working in an area.

f. There are many other items, but the above usually are the most important.

Indicated roughly below is the very approximate cost for all-year air conditioning. This is based on a ceiling height of 13 ft. to 14 ft., and reasonably well constructed building.

The following table covers the cost of air conditioning for various size plates:

6000 sq. ft.; the cost is $1.75 to $2.25 per sq. ft.

10,000 sq. ft.; the cost is $1.50 to $2.00 per sq. ft.

15,000 sq. ft.; the cost is $1.40 to $1.75 per sq. ft.

25,000 sq. ft.; the cost is $1.25 to $1.60 per sq. ft.

These figures are approximate and should be used w. .h discretion.

Cost of Operation

Regarding the cost of operation, here again, we are dependent on a number of factors; such as power cost, water cost and accounting methods for amortization. Taking the overall average, I would say that the operating cost for an air conditioning system will run approximately ten to fifteen percent of the initial investment, depending on geographical location, etc. This does not include any fixed charges.

The cost plus the fixed charges will probably be somewhere around 20 to 25 percent. This seems rather high, but when one considers the fact, that labor is by far the most expensive item in the plant, and since air conditioning will eliminate many of the labor waste items, it can readily be seen that an air conditioning system can make a substantial saving.

Air Conditioning Existing Buildings

The question often comes up: Can you install air conditioning in existing buildings? The answer is yes. In fact, most of our buildings today are well constructed. The areas are open sufficiently so that air conditioning installations do not offer any serious problems.

You may be obliged to make some modifications, install some partitions, insulate some walls, and likely double sash your glass areas. But these changes do not offer any particular problem, because that work would normally be done in a new building, so the additional cost isn't unreasonable.

With regard to new buildings, when air conditioning is being considered, you naturally arrange your air conditioning equipment in the most economical manner. This of course leads to likely savings but I would say that based on our experiences, there isn't too much difference in cost between air conditioning an old building and a new building.

Partial Air Conditioning

Is it practical? My answer is yes. If you can't condition all of the departments, then you should condition one or more. You might start with the pressroom, or you might start with some part of the process rooms.

What Type of Air Conditioning?

With the equipment available today, it is a problem to decide what type of air conditioning equipment shall be selected. The correct answer to this question can be given only after an analysis of individual conditions.

This involves a study of power, gas, coal, and water costs. In addition, one should check to see if well water is available. Then too, the geographic location enters into the picture.

Shall it be mechanical refrigeration? Shall it be chemical de-hydration? shall it be well water? or shall it be a steam vacuum cooling plant? We have made installations using all of them, but made the choice only after ascertaining all of the factors involved.

Partial air conditioning should be given every consideration. After all, partial air conditioning systems such as humidification and ventilation will give very good control during the winter and cooler seasons of the year. In fact, you can obtain the same control through this type of equipment that you can from an all-year-air conditioning system but the plant confined only to the cooler seasons of the year. This is the first step towards all-year air conditioning.

Photomechanical Developments

FOLLOWING the address presented by B. Offen, the next speaker was Richard W. Gardner, Graphic Arts Div., Eastman Kodak Co. Mr. Gardner spoke upon the topic *Photomechanical Developments*. An abstract of his address is given immediately below:

Ektachrome — Kodak's new color-transparency material is processed by the photographer himself, making possible delivery of color copy in a matter of hours.

Photographic Masking Methods — Work has been going forward steadily and intensively in this field for many years in order to devise photographic methods of both tone and color correction. Today it is possible to reduce handwork by from 50% to 80% in the production of printing plates—and at the same time to improve the quality of the final reproduction. By the adoption of such methods, more and better plates—in a given time—are delivered to the press room.

Kodak Fluorescence Process—This is another process of color correction, by photographic means, of water color sketches made with special fluorescent water colors. This, too, affords increased production by eliminating one of the bottlenecks in the art and plate-making departments which in turn holds up press operations.

Kodak Dye Transfer Process—This is a modification and improvement over the Wash-Off Relief Process which permits the making of dye-imbibition color prints of high color fidelity and in much less time than was previously possible.

Ektachrome, properly exposed and processed, provides transparencies having soft gradation and, at the same time, brilliance of color. It has lower contrast than obtained with Kodachrome. From the standpoint of reproduction, this is especially important since it permits an improvement in the rendering of highlight and shadow detail. At the same time, it permits a range of lighting approximating that used in black-and-white work.

Ektachrome is provided in all the present Kodachrome Sheet Film sizes and also like Kodachrome, there are two types:

one for artificial light

and one for daylight.

The processing chemicals are furnished in kits containing all the necessary chemicals. And an important consideration is the fact that a new color developer has been evolved which is no more likely to cause skin irritation than black-and-white developers. Since most professional photographers already have processing tanks, the only additional requirement is obtaining a means of providing the necessary temperature controls to permit him to make and process color transparencies in his own studios.

Complete processing operations require approximately 90 min., of which the first 19 must be in total darkness. The steps in the operation are enumerated as follows: 1. A 15 min. initial development. 2. One min. rinse. 3. Hardened for 5 min.; after 3 min. in the hardener, the room lights may be turned on. 4. Five sec. reversal exposure for each side of the film, exposure being made by holding the films about a foot from a small flood-type lamp. 5. Five min. wash. 6. Twenty-five min. color development. 7. Five min. in the clearing and fixing bath. 8. One min. rinse. 9. Ten min. bleach. 10. A short rinse. 11. Five min. fix in the clearing and fixing bath. 12. Ten min. wash. 13. One min. in Kodak Photo-Flo to reduce possibility of water spots during drying. 14. Drying as for other photographic films.

This new color material, of course, is primarily of interest to the professional photographer. He can see his results before studio setups are torn down and can be sure he has obtained the best color transparency.

You should receive the transparencies promptly since there will be little, if any, more time required in their production than is required for black-and-white copy.

Masking

A mask consists of a negative or positive, usually of low contrast, which is bound together with a positive or negative, usually of normal or high contrast, in exact register. The purpose of a mask is to effect a correction in tone or color values without an appreciable loss in the photographic quality of the completed job. While photographic masking methods have been in use for a number of years, the Eastman Kodak Co. having introduced a specific procedure over 10 years ago, there are many new developments which make masking methods much more practicable today.

Our experience showed us that only by use of masking was it possible to translate to paper the photographic and color

qualities which had been obtained in the color film. Without masking, delicate gradations of highlight and shadow detail and slight color differences would be lost completely in the reproduction.

Area Mask

The first type is one we call the area mask. It is used in making black-and-white prints with subjects where detail in both deep shadows and bright highlights must be rendered in the relatively short tone scale of the printed reproduction. It is actually a photographic means of dodging and the mask is made by placing a diffusing medium and a separator such as a sheet of glass between the transparency and the sensitive material. The mask which is extremely unsharp or "fuzzy" is then bound in register over the negative or positive for making the final print. Since the mask is extremely unsharp, the register problem is not particularly critical.

Unsharp Mask

One of the major difficulties previously encountered in masking procedures was the problem of obtaining accurate register. If close register was not obtained, an outline effect resulted in the finished job, which had to be overcome by handwork. Generally this handwork offset to a large degree the handwork eliminated by the color correction obtained through the masking operation. In order to overcome this deficiency a method of producing an unsharp mask was devised.

The unsharp mask is one in which the edges of the image have been enlarged slightly and a vignetted effect obtained by an undercutting action of the light when making the mask. This effect can be obtained either by use of a diffuser and separating glass, or by use of a separator and the light source set at an angle to the copy. In the latter case, it is necessary that the transparency be rotated during exposure in order to assure a uniform spreading of the light. It is no great problem to construct a turntable for this purpose, and instructions covering the subject will be available shortly.

Highlight Mask

In masking transparencies such as Ektachrome, one of the early difficulties encountered was a tendency for the mask to cause a flattening in the highlight areas. In order to overcome this, a highlight mask is made. This consists of a negative made by contact with a high contrast film such as Kodalith. Exposure is short enough to produce density only in the highlight areas. Development in a developmer such as DK-60a should be about 30 to 45 sec. and should produce a maximum density of approximately 0.30. This highlight mask is bound in register over the transparency to shield highlight degradation when making the correcting or principal masks. It is removed, however, when the correcting masks are placed over the transparency for making the separation negatives.

Masking Ektachrome

In masking Ektachrome transparencies, a highlight mask is first made as indicated previously, if there is delicate highlight detail which must be preserved. When the highlight mask is used, the range of the transparency plus the highlight mask should be used as the basis for arriving at the density range of the correcting masks. Generally speaking, the range of the correcting masks should be 40% to 50% of the range of the original. The stronger the mask the more accurately the processing operations must be controlled in order to prevent color distortions.

The correcting masks should preferably be made by the rotation method in order to obtain a satisfactory uniformity in the unsharpness. The correcting mask for the "blue," "red," and black printers should be made, using the No. 25 and No. 66 Wratten Filters in combination over the light source. No color correction is obtained on the "blue" and black separations, but the mask helps to preserve a uniform contrast in the original for all separations. The mask for the yellow printer is made, using the No. 58 Wratten Filter over the light source.

Once the correcting masks have been made, the highlight mask is removed, and the correcting mask for the "blue," "red," and black printers is bound in register. Separation negatives on Kodak Tri-X Panchromatic, Type B, Plates are made in the usual manner, using the Wratten Filters No. 25 and No. 66 for the blue printer, No. 58 for the "red" printer, and No. 86, or a combination exposure with the three separating filters, for the black printer. The correcting mask for the yellow printer is then substituted for the first and the separation made through the Wratten No. 47A. If tungsten illumination is used instead of arc light, the No. 47 filter may be used instead of the No. 47A. Halftone positives or continuous-tone positives and halftone negatives may then be made in the usual way.

Kodak Fluorescence Process

This process, which makes use of the phenomenon of fluorescence to obtain color correction, is ideal for reproducing water color sketches. The fluorescent water colors supplied for this purpose fluoresce when exposed to ultraviolet light. By mixing the proper proportion of ultraviolet radiation and visible light by means of the Kodagraph Copyboard Hood, this fluorescence can be controlled so as to give fully color corrected negatives.

The heaviest fluorescence, of course, is incorporated in the blues and greens of the palette, since these are the ones needing the greatest correction. The additional exposure obtained through the effects of the fluorescence make up for the lack of density normally obtained due to the fact that blues and greens do not reflect all of the blue and green light striking them.

Kodak Dye Transfer Process

This is a process for producing color prints by the dye imbibition process. It is similar to the Eastman Wash-Off Relief Process which it succeeds, but gives improved results with a great simplification of technique at the same time shortening the time required for producing matrices and prints.

The number of operations has been reduced materially, and approximately 6 to 7 min. is all the time necessary to produce a matrix.

Once the matrices have been prepared, a print can be made every 10 min. by an experienced workman. A simplified registering system has been worked out whereby register is obtained manually rather than visually as in the past.

It is a process ideally suited for use in preparing color prints for use as original copy, or where relatively small numbers of duplicate prints are required.

Huebner Discusses Business and Technology

WM. C. HUEBNER, president of Huebner Laboratories, New York, discussed *Photomechanical Developments*. He reviewed briefly the inception offset which industry is now 40 years old. He remarked that in 1945 the value of offset-lith's products was about $300,000,000.

He continued: "The lithographic industry has not traveled an easy road since 1906, nor will the road ahead be easy for individual plant owners. General economic conditions affected the industry will require constructive thinking and performance as business men and as craftsmen, if you want to stay in business and earn a worthwhile profit.

"The time is here for another start of basic technical changes, greatly needed in the industry, to be applied gradually; these developments will demonstrate their commercial usefulness in the near future. The items outlined in this paper with respect to photomechanical developments, are not imaginations or predictions based on wishful thinking; they are items that have undergone conclusive laboratory tests and have cost substantial sums in cash and many years of hard effort.

"The new items are intended to be more useful and more profitable because they are based on observations made during 40 years of daily contact with production efforts, in over 150 plants involving relief, offset, gravure and gelatin printing.

"For example," said Mr. Huebner, "your industry is handicapped by the dampening roller system. You should have dry offset, because water rolling over the work areas emulsifies the ink and flattens the visual result of color. Grained plates, and the hand gumming procedures when the press stops, are trouble-making operations; both should be eliminated. For test and display type, you have been compelled to use hot metal composition, and carefully made-

(Continued on Page 52)

Equipment and Supplies

Hoe Announces Offset Press

WHAT is claimed to be the world's fastest offset printing press, running at speeds from 10,000 to 30,000 lithographic impressions an hour, has just been added to the products of R. Hoe & Co., Inc.

In making this announcement, Joseph L. Auer, Hoe's president, emphasized that the web job press which is arranged with a fixed sheet cut-off of 8½ in., occupies less than 25 sq. ft. of floor space is automatic in operation, and capable of feeding rolls of paper from 10 to 14 in. wide. Paper as thin as onion skin or as thick as index bristol may be used.

An improved ink and dampening distribution is incorporated in its design. Arthur Dressel, vice president and general sales manager, explained that the press has 2 dampening rollers, 2 ink form rollers, and 12 ink distributing rollers—6 of composition and 6 of steel—as well as one vibrator. Ink is deposited on the third distributor roller, thus giving the first two rollers time to dissipate any moisture.

"The lithographed sheets are delivered in lined up stacks ready for packaging." These stacks may be removed without stopping the press. Discussing changing of plates, Mr. Dressel said that it is possible to make plate and roll changes quickly. Wash-up is quick.

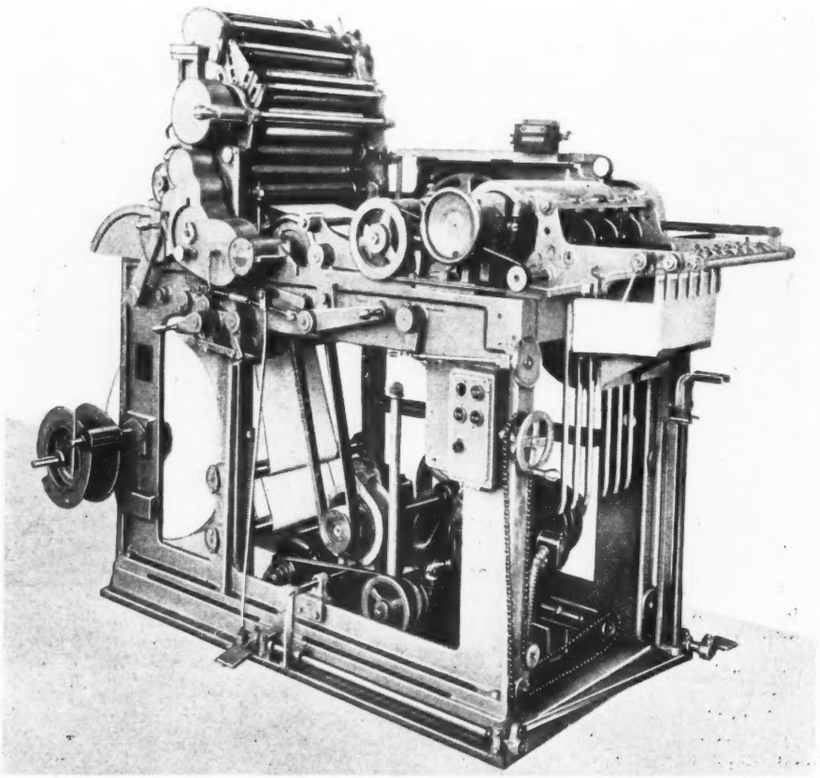
The web offset jobber is adaptable to letterheads, cards, business forms, inserts, handbills, and many other small jobs requiring one color on one side of the finished sheet.

Better Wetter Than Spit

SAYS Kano Laboratories: "You have probably noticed that when you moisten an envelope with saliva it sticks immediately but when you try to do it with a sponge and water you frequently have trouble. Saliva contains chemical elements that soften the glue which are lacking in ordinary water.

Recently Kano Laboratories developed a product known as Kano Tak. It contains some of the newer chemicals which soften glue quicker than saliva. When used with gummed tape, the tape sticks.

The product comes in concentrated form and is mixed with water and may be used in mailing machines.



Said to be world's fastest web offset jobber is this addition to the printing press line of R. Hoe & Co., Inc., of New York. Press is designed to run at speeds from 10,000 to 30,000 lithographic impressions an hour. Occupies 25 sq. ft. floor space. Feeds roll paper from 10 in. to 14 in. wide; fixed sheet cut-off is 8½ in.

First To Use G-E Electronic Drive

A COMPLETE General Electric electronic drive, providing increased flexibility, minimum speed variation with load, and efficiency over a wide range of operating speeds, will be applied to 61 rotogravure and 44 newspaper press units at the new plant of the Philadelphia *Inquirer*, now under construction. Although similar drives in which d.c. motors are powered and controlled by electronic tubes have been successfully applied in other industries, the *Inquirer* installation is claimed to be the first instance of a drive of this particular type being applied in the printing industry.

Operating directly from a 440 v. plant circuit, the drive consists of a sealed-ignitron tube panel and a magnetic control panel (both mounted in metal enclosures), the required motor selector switches, and the necessary d.c. drive motors. With the exception of the drive motors, the remainder of the equipment is static. It is stated by General Electric that "this not only contributes to compactness and eliminates the necessity of special foundational and structural supports, but also facilitates incorporation with modern load-center power distribution equipment."

With this new drive, which is adapted for use with high-speed, rotary web presses, adjustable voltage is supplied to adjustable-speed d.c. drive motors which may be mounted co-axially with the main shaft of the press. By properly shifting the ignitron rectifiers, stepless speed control—including jogging, slow threading speed, acceleration, deceleration, and dynamic braking—is provided without the necessity of speed regulating resistors or auxiliary starting motors. Throughout, the drive is operated by the conventional arrangement of push-button stations, including the emergency control station and the automatic safety signal system. In addition, the equipment is fully protected against overload and short-circuit disturbances.

Concrete Maintenance Discussed

CONCRETE maintenance is the subject of the current issue of *The Trowel*, a bulletin published periodically by The Master Builders Co. for men in the construction industry. Discussing the cause of concrete disintegration and how to make successful repairs, this 12-page bulletin contains practical information on the following subjects: increasing the useful life of concrete floors by "armor-plating", controlling the shrinkage in machinery grouts, building restoration, repairing hydraulic structures, and protective sealing and decorating concrete and masonry surfaces. Information is presented pictorially with a minimum of written text. For a free copy, write The Master Builders Co., direct or through *Printing Equipment Engineer*.

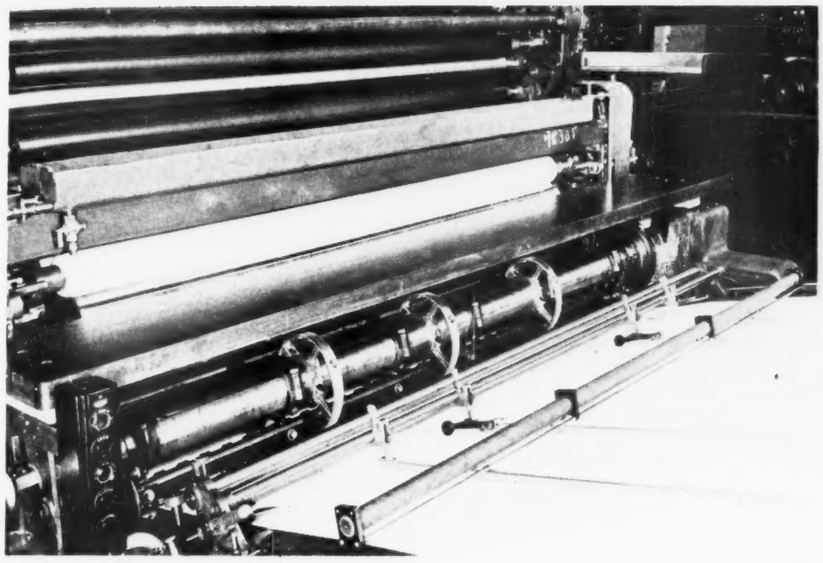


Illustration shows Takk Static Eliminator attached to the No. 61 Miehle offset press. Bars can be installed covering any width. The Takk device, states manufacturer, is equally efficient on paper, film, cloth, cellophane, foil or other static producing material. Takk engineers have arranged installation mountings so that they will not interfere with guides, grippers or other devices.

Takk Static Eliminator

THE Takk static eliminator, developed by Takk Laboratories, utilizes electronics to eliminate positive and negative static charges from all types of paper or other materials moving through printing presses. "Extensive tests made by press manufacturers, printers and converters, under year 'round climatic conditions", states manufacturer, "have proved the takk static eliminator's ability to overcome previously controllable paper gymnastics."

Use of this device, according to tests, permits faster press operation, better registration and less ink smearing. Takk's eliminator can be installed within effective range of practically all static-creating points on printing presses, converting machines and other devices, according to the makers.

Manufacturer states that actually the scientific description of static, and how the Takk eliminator combats it is comparatively simple. Motion is the cause of friction, which produces electrical charges. If this electricity is uncontrolled, it may result in amazingly weird effects. Takk engineers point out that friction causes electrons and ions to attach themselves to the material's entire surface. Some areas are more susceptible to charging than others—which in simple terms amounts to an uneven impregnation of electrical energy.

Again turning to the scientific explanation, the static charge in the material is completely and entirely eliminated from both sides and all the way through the material by induction. This means that static is an electronic action, which can be controlled by producing another electronic action that counters the original.

This is the Takk static eliminator's function. Its method is the introduction of neutralizing bars, each carrying a row of ionizing points, across the friction-producing material, as near the point of friction as possible.

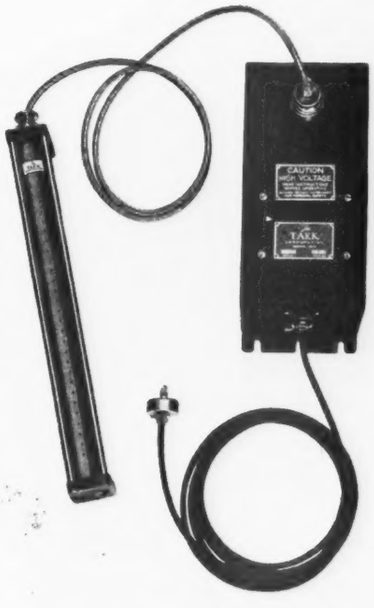


Illustration shows Takk model 90-S static elimination unit ready for installation. All electrical connections are concealed to prevent possibility of shock or reflex injury to workers around printing presses, folders, bag making or paper converting machines. Eliminator shown here has one bar which can be applied to any troublesome point. Other units with different power packs to which 2, 3 or 4 bars can be attached, are also available. Takk eliminators may be secured for either a.c. or d.c. current sources. The bars are mounted on the machines with the small points facing the source of static, or static-laden material.

The Takk device can be installed on practically any printing press, folding machine or other device where static is a major problem. A simple description of the difficulty, and details on the make and model of the machine are sufficient for Takk laboratory technicians to prescribe the proper application of the static eliminator. This information must include the nature of the power source if other than 110-115 v., a. c.

Takk equipment has been adopted by a number of printing and converting concerns. The Miehle Printing Press & Mfg. Co. has installed the static eliminators on the No. 61 and No. 76 offset presses as standard equipment.

Although the voltage used in eliminating the static is relatively high, the Takk equipment is designed and constructed for safety. It is claimed there is practically no danger of pressman or others being injured as a result of a shock under normal operating conditions.

Nitroloid Tabbing Compound

A TABBING compound under the trade name Nitroloid is announced by J. P. Luther Co. It is described as a plastic that is elastic. Manufacturer claims these advantages: always ready to use, requires no heating or stirring,

dries in a few minutes, has no bad odor, holds tight, remains permanently flexible, is not affected by temperature changes; brushes used do not have to be washed. Nitroloid is available in clear and red, and in pint, quart, gallon, and 5 gal. size containers. More information may be secured from the J. P. Luther Co. or *Printing Equipment Engineer* will pass along your request.

Davidson Paper Master

ANNOUNCEMENT has recently been made of the Davidson Paper Master —a paper-like plate for use on all offset duplicating machines. According to the manufacturers, this Paper Master is as smooth and flexible as heavy paper, is ready for use and requires no special preparation. Anything that can be typewritten can be reproduced. Typing on it can be done with any standard typewriter, billing machine, bookkeeping machine, or other mechanical writing device. Either carbon or fabric ribbon may be used and corrections can be made with an eraser. Marginal scales, indicat-

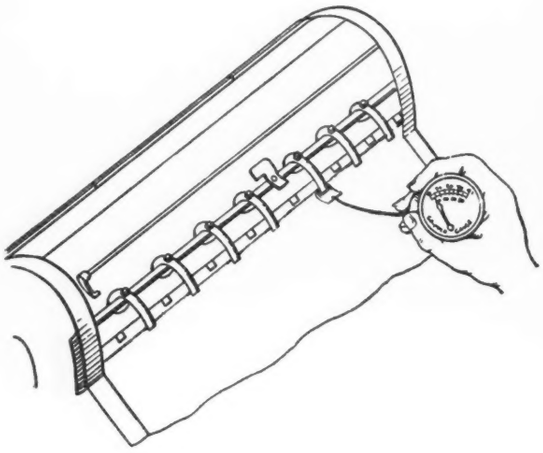
ing standard typewriter line spacing on the sides and both pica and elite character spacing at top and bottom, are provided for positioning copy.

Illustrations and hand lettering, either alone or in combination with typewritten work, may be done directly on the Master using pen, brush crayon, or pencil. Multicolor work is done by using a separate Master for each color.

For the reproduction of various kinds of office forms, lines may be ruled on the Master with a ruling pen. Headings can then be either hand lettered or typewritten.

The manufacturers further state that Davidson Paper Masters will not curl when removed from the duplicator, but lie perfectly flat. When removed and dried, they can be prepared for storage and filed for future runs.

Particular attention is called to the use of the Davidson Paper Master in its preprinted form. They can be supplied pre-printed with any office form for order writing and billing.



Diagrammatic view of Arlin Gripper Gauge being used to set individually the pressure of grippers on cylinder and offset-lith presses. By means of the gauge the pressure of the grippers may be made uniform. Case housing gauge is 2 in. diam. by $1\frac{3}{8}$ in. deep. Cord connecting steel tab is cable wire with woven rayon covering. Cord is detachable from gauge and tab by threaded collar.

Arlin Gripper Gauge

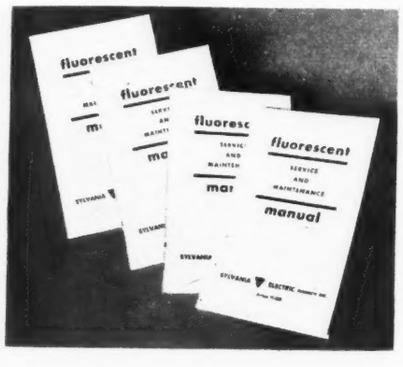
ROBERT G. LYNN has announced development of the Arlin Gripper Gauge. The purpose of the gauge is to enable the pressman to adjust the pressure of gripper fingers alike on cylinder and offset-lith printing presses. The guage consists of a graduated dial enclosed in metal housing. The hand is actuated by frictional pull exerted by the operator when the steel tab attached to the flexible connection is pulled slowly from under the gripper finger. The amount of tension exerted by the gripper finger is shown by the hand on the graduated dial.

The setting of the pressure exerted by each individual gripper can be determined quickly by this gauge, thus eliminating guesswork upon the part of the pressman. After the preparatory stages of adjustments have been made, the grippers are loosened. The steel tab attached to the cord is inserted under the gripper. The gripper is then tightened. The gauge is held in the right hand as shown in the accompanying illustration. The steel tab is then slowly withdrawn from under the gripper. While the tab is being withdrawn, the pressman notes the degrees of tension. All grippers are set individually by the same method until a uniform reading on the dial is obtained. Mr. Lynn suggests that a reading of 65 deg. on the dial is used for 70 lb. or 80 lb. coated paper.

Further information may be obtained from Robert G. Lynn direct or through *Printing Equipment Engineer*.

Service and Maintenance Manual

SYLVANIA Electric Products, Inc. announces the publication of an 80-page book entitled *Fluorescent Service and Maintenance Manual*. The book is written for electricians, lighting engineers, electrical contractors and wholesalers, and contains details on fluorescent lamp operation and the various problems encountered in maintaining fluorescent systems.



Book for maintaining and servicing fluorescent systems.

In addition to text material there are many illustrations and diagrams of different circuits and test equipment.

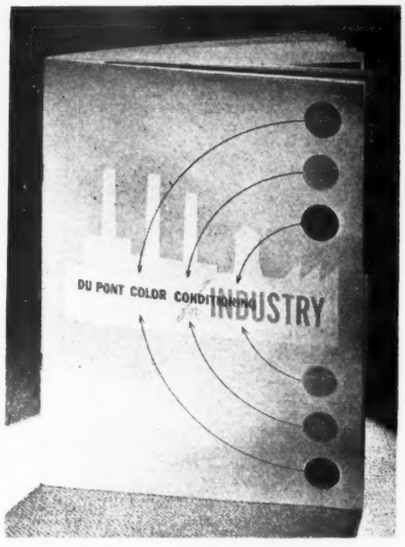
The manual is pocket size, contains a cross reference and a glossary of terms used in fluorescent lighting. Priced at $1 it can be had by writing to Sylvania Electric Products, Inc., or *Printing Equipment Engineer* will pass along your request.

Color Conditioning Booklet

DU PONT Color Conditioning for Industry, is a 32-page booklet illustrated in color. It is available on request to the E. I. du Pont de Nemours, Finishes Div., Wilmington 98, Del.

Illustrating and describing practical experience with color to increase production, improve seeing conditions and create a better working environment, the booklet makes clear the fundamental principles on which color conditioning is based.

The "three-dimensional seeing" treatment of machines is depicted with photographs of actual installations. The safety color code for industry is also outlined. Color conditioning is shown at work in plants of several companies. A coordinated functional color program for an entire plant is illustrated in a double-page cutaway drawing.



Pulling Proofs

MINNESOTA Mining & Mfg. Co. has published 4 page illustrated leaflet, $3\frac{1}{4}$ in. by $6\frac{1}{2}$ in. entitled *How to Pull a Perfect Proof Every Time*. The use of Spherekote both as a tympan and frisket in pulling photo-engraving proofs is explained. Spherekote Frisket and Tympan is supplied in roll and die-cut form.

Folder Available

THE Mosstype Corp. has issued a 4 page informative folder entitled *Mosstype Rubber Plates*. A reference chart in the folder describes the kinds of rubber plates, gives the size of each, how to mount, and recommends the purpose for which each should be used. The folder may be obtained upon request to Mosstype Corp. or *Printing Equipment Engineer* will be glad to forward your request.

Life-Line motors on the finishing line at the Buffalo plant of Westinghouse are tagged for shipment for industrial applications. This new all-steel motor is more than 35 per cent smaller than its cast iron predecessor.

Westinghouse Life-Line All-Steel Motors

THE following descriptive matter about Westinghouse Life-Line All-Steel Motors has been summarized from a manuscript prepared by F. C. Rushing, Manager, Motor Engineering, Westinghouse Electric Corp., Buffalo, N. Y.

The use of steel instead of the more conventional cast iron in motor manufacture is not entirely new. In this motor the novelty is that the structural steel sections are as thick as they would be if made from cast iron.

Shock resistance of steel is much greater than cast iron as became evident during the War when use of cast iron on naval vessels became taboo because of its low shock resistance. Steel motors had to be developed and much experience was obtained in their use. Thus the War experience is reflected in a peacetime motor of marked increase in shock resistance and ruggedness.

It is a fallacy that steel corrodes faster than cast iron. Research tests demonstrate the two materials corrode at equal rates. Where thick steel sections are used, excessively rapid corrosion is not experienced.

The finish coating will consist of base coats of baked thermoset varnish with a final coat of lacquer. Tests and experience have demonstrated that steel with this finish is adequately corrosion resistant for general application. Improved appearance in surface smoothness is made possible by use of steel instead of cast iron.

The use of steel has resulted in a smaller size. In motors, minimum clearances must be maintained between windings and grounded parts of the frame. Since dimensions of formed steel parts can be held accurately. This may amount to a saving of ¼ in. on a 10 in. diam. or length.

Size is also reduced by an improved engineered cooling system. Losses in a motor are inherent and are dissipated in the form of heat. The cooling surfaces adequately maintain temperature limits.

Comparative motor sizes of 7½ h.p. ratings are shown in Fig. 1. The open-protected machine is 83 per cent as large in diameter and 94 per cent as long or a saving of 35 per cent of the volume of last year's machines. The new totally-enclosed motor is 83 per cent as large in diameter and 82 per cent as long, saving 44 per cent of the volume of its predecessor. (Standardized NEMA dimensions have been maintained). Sizes of electrical working parts have remained substantially the same.

Smooth and quiet operation has been accomplished by careful engineering and precision manufacture. Noise and vibration are produced by harmonic forces acting on parts which distort in response to them. Proper choice of slot combinations and of winding distribution have eliminated and reduced disturbing electrical harmonics.

Precision manufacturing and control give concentric air gaps which reduce the distortion due to remaining harmonic forces.

Proved prelubricated ball bearings are used. They require lubrication no sooner than five years after the motor is placed in operation.

Most failures are traced to damage of insulation during the winding process or to faulty and inadequate insulation. To simplify and facilitate the winding process, slot shapes and sizes, coil shapes and sizes, and connections were all redesigned. Synthetic resin-covered wire is used. Multiple dips and bakes of thermoset varnish give a hard and well-protected winding. The shortened coil extensions are less vulnerable to damage.

Several types of motors are attained through extensive interchangeability of parts. The manufacture and conversion of different types is simplified. The conduit box may be reversed by reversal of the frames on each of these three types.

Folder Issued

A folder entitled *Rubber Design Rollers and Rubber Plate Cylinders* has been issued by the Mosstype Corp. It explains that the rollers are used for printing a continuously repeated pattern or design for aniline printing on paper, cellophane, glassine and cardboard. The steps in making the rollers are described beginning with the art work, then the photoengraving and the final process of rubber platemaking. A copy of the folder may be secured upon request to the Mosstype Corp., or *Printing Equipment Engineer* will forward it for you.

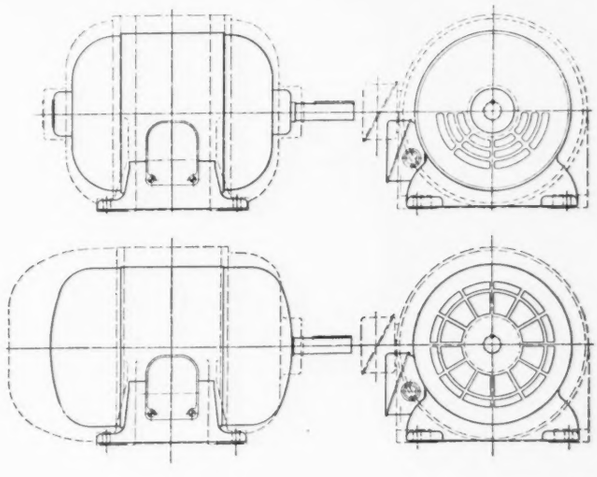
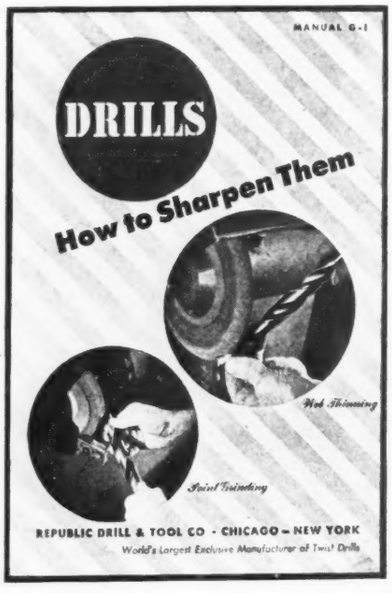


Fig. 1—Comparative sizes of 7½ h.p. motors. Upper diagram, open-protected motor. Lower diagram, totally-enclosed fan-cooled motor. Westinghouse Life-Line motors (inside solid line) contrasted to last year's models shown by outside dotted line. Open-protected type (top) requires 65 per cent as much space, while a totally-enclosed fan-cooled motor (bottom) requires 56 per cent of former volume.

Drills—How To Sharpen Them

REPUBLIC DRILL & TOOL CO. has published a 24-page manual on the correct principles of sharpening twist drills. The manual contains detailed data on the proper care of twist drills


MANUAL G-1
DRILLS
How to Sharpen Them
Web Thinning
Point Splitting
REPUBLIC DRILL & TOOL CO · CHICAGO – NEW YORK
World's Largest Exclusive Manufacturer of Twist Drills

Illustrated above is front cover of Manual G-1, Drills—How to Sharpen Them.

and gives a number of pointers on sharpening and web thinning as well as dimensions and angles of proper points for best results in drilling various materials. Interested persons should request Manual G-1 from Republic Drill & Tool Co., or *Printing Equipment Engineer* will forward it for you.

Patent for Self-Sealing Envelope Available

American citizens now can obtain a license to manufacture an improved self-sealing envelope.

Alien Property Custodian James E. Markham announced recently that a patent, seized from enemy nationals, covering this self-sealing envelope is available on a royalty-free, non-exclusive basis for the remaining life of the patent. An administrative fee of $15 is charged for the license.

When an envelope is made under this patent, Mr. Markham explained, the flaps remain open until sealed and do not tend to close of their own accord. Printed indentations at the base of the flap make folding easy. Also, the adhesive, which does not adhere to the uncoated surfaces, is applied in a pattern providing channels for escape of air that might be caught in the sealing process and cause bulges or creases.

Complete licensing information may be obtained from the Patent Use and Development Section, Office of Alien Property Custodian Washington 25, D. C. A copy of the patent—No. 2,014,914—may be obtained only from the Commissioner of Patents, Washington, D. C., for 25 cents.

Postwar Boom in Invention

PATENT research is to become vastly more important according to Invention, Inc., Washington, D. C. patent research organization. Inventors, and manufacturers, too, may withhold the details of their inventions until patenting and it is the established policy of the U. S. Patent Office to hold inventions strictly secretly until patents are finally granted. This fact, and a post-war boom in invention, is causing the piling up of what may prove to be one of the nation's most valuable surpluses.

Patents are known principally for giving their owners the right to exclude all others from making, using, or selling inventions for 17 years. However, Raymond E. Jager, President of Invention, Inc., points out that patents also serve as industry's biggest and richest source of technical information. And as productive as patent research is today, watch tomorrow.

There are now more than 123,000 applications for patents awaiting action in the Patent Office. This array of "what's new" is not merely unprecedented; it is in excess of normal by sixty to seventy thousand inventions. Just how soon the details of these inventions are opened to industrial review depends mainly upon the ability of the Patent Office to turn out the patents. The tremendous backlog of patent applications is still swelling at extraordinary speed because new inventions are pouring in at the rate of several hundreds per week faster than the U. S. Patent Office is able to complete the examining procedure and issue new patents.

Yet the backlog is already so big that if nobody invented anything or filed any more patent applications during the entire next year, Invention, Inc. estimates that, even so, there would have to be three or four times more new patents next year than last year (as well as unsuccessful applications) if the Patent Office were to catch up with its work. This means—assuming the Patent Office will find facilities to handle the work—nearer 2,000 new patent every week as compared with the approximate 500 of war years. A corresponding 400% increase in the useful technical information to be derived from new patent disclosures is predicted by Invention, Inc.

U. S. patents, numbered consecutively, are now being given numbers in the 2-million, 4-hundred-thousands. Invention, Inc., which serves industry with information on new technical developments, offers a pocket-sized folder entitled *Telling the Age of a U. S. Patent by its Number*. This handy reference contains a dated tabulation of the numbers for patents, reissues, designs, and trademarks for 110 years, from 1836 to 1946, so that age for a known number can be determined at a glance. The folder is free and may be obtained by writing Invention, Inc., Munsey Building, Washington 4, D. C.

Die Cutting Booklet

SHAPING A BETTER FUTURE is the title of an attractive 22-page die cut booklet published recently by Accurate Steel Die Mfrs. Some of the subjects discussed in the booklet are: Any Printer Can Die Cut Successfully; How to Prepare Press for Die Cutting; How to Makeready for Plain Cut-Out on a Platen Press; Simple Makeready for

Pictured above is the booklet which discusses die cutting by the printer.

Creasing on a Platen Press. Copies of the book may be secured upon request to the Accurate Steel Rule Die Mfrs., or *Printing Equipment Engineer* will forward it for you.

Lithography's Field Defined

Supplemental teaching material on when to use the lithographic (offset) process, to be used in conjunction with standard text books on advertising production, has been published by the Lithographers National Association under the title, *Lithography's Place In Printing Production*. The new material is designed to fill the gap in published material available for instructional purposes in courses in advertising and printing production.

The reasons for using the lithographic process are arranged in six basic groups. The disadvantages of the process, particularly the cost of individual short runs of straight type matter are also covered.

Copies of the folder are available without cost to colleges, advertising clubs, and other organizations conducting courses in printing production, from the Educational Department of the Lithographers National Association Inc., 420 Lexington Ave., New York 17, N. Y.

Pride In Their Craft—The miniature illustration above was reproduced from the invitation of the American Photo-Engravers Association to its 50th Annual Convention in Philadelphia. Title of the invitation might be "Let's Pull Together." The invitation is 12¾ in. by 17¾ in. It is printed on a rough fabric surface, Beau Brilliant heavy weight ivory paper, in three colors, by letterpress and presents an elegant effect. As nearly as can be described, the background is Van Dyke and Sepia brown, the hands in ivory, amber and tan.

The illustration was made from a photograph. The plates were made by the posterizing method. This consists of photographing the original copy, three negatives being made, and separating the tones in three distinct steps. Thus all intermediate tones were eliminated and resulted in solid plates. The plates were made on zinc and no halftone work was involved, although a halftone effect was obtained.

Design by Robert W. Washbish of Taylor & Taylor, Printers, San Francisco, Calif.

"If You Don't Lay Off, You B----, I'll Punch You In The Nose!"

For the second time this employee was called down for being late—for the second time, he had threatened his foreman. Discharge for rank insubordination followed and the union brought the case up for arbitration.

Highlight in this case was that the arbitrator reinstated employee K in "a job of equal grade and rate of pay;" restored him to full seniority and gave him back pay equivalent to straight-time wages:

But that wasn't all:

Arbitrator admitted that "Employee K conducted himself in a rather cocksure manner, had a quick temper, easily provoked arguments and was quite free with his threats." But nevertheless, "The penalty of discharge was excessive and too severe."

Further investigation of the facts show that the Union had put in 10 sound claims for its member during proceedings. The Company in question placed but three rather weak claims. Which all goes to further prove that nine times out of ten the Unions' mastery of the processes of arbitration will *not* be matched by the employer.

Pitfalls to avoid in labor arbitration is a confidential manual for management prepared by labor arbitration experts in collaboration with the nationally known editorial staff of the *executive's labor letter* and published by the National Foremen's Institute, Deep River, Conn. 56 pages on Bond paper in Multo fabrikoid binder, multigraphed in two colors, price $5.00 f.o.b. shipping point. Publication date: November 1, 1946.

Efficiency and Lighting

(From address delivered by Robt. W. Dickerson, Cleveland architect and engineer, before 1946 Montreal Craftsmen's convention.)

The relationship of good lighting to efficiency just isn't questioned. Aside from the angles of personal comfort and health, good lighting reduces errors, increases output, and improves the quality of the product. Present day lighting standards are higher than they have ever been, but in no instance that has come to my attention have they failed to justify installation and operating costs.

Photo-engravers Convention Well Attended

THE 50th annual convention of the American Photo-engravers Association was held at the Bellvue-Stratford Hotel, Philadelphia, October 14, 15 and 16. Approximately 1000 people were in attendance. The program was designed to satisfy the technically-hungry membership with the latest advancements in the photo-engraving industry. Awakened to the necessity for scientific research, a prominent place on the program was given to this subject. The activities of Photo-Engravers' Research, Inc., were reported upon. In addition, the results of private and manufacturer research were discussed. The dominant theme among all printers—that of color—was discussed by practical engravers and equipment manufacturers.

Equipment and supplies exhibitors were as follows:

Atlantic Zinc Works, Inc.
Allan B. Croke Co.
Consolidated Photo-Engravers Equipment Co.
John Royle and Sons
Le Page's, Inc.
Mallinckrodt Chemical Works
Electronic Mechanical Products Co.
The Craftint Mfg. Co.
The Edes Mfg. Co.
Engravers Equipment Co.
Master Etching Machine Co.
Harold M. Pitman Co.
Phillips & Jacobs
Bridgeport Engravers Supply Co.
Wells Mfg. Co.
Nu Etch Process Co.
Max Levy & Company—Repro Art Machinery Co.
General Art Plate Makers Supply Co.
Printing Arts Research Laboratories
William P. Way
Philip A. Hunt Co.
Electro-Matic Engraving Co.
Ansco—A Division of General Aniline & Film Corp.
Vandercook and Sons, Inc.
National Carbon Co., Inc.
American Type Founders
Chemco Photoproducts Co.
Imperial Type Metal Co.
Chemco Photoproducts Co.
The U. S. Stoneware Co.
E. T. Sullebarger Co.
Greene and Bussman, Inc.
R. R. Robertson
Merck and Co.
National Steel & Copper Plate Co.
Eastman Kodak Stores Co.
Axel Holmstrom
Macbeth Arc Lamp Co.

Color dominates discussions at New England Newspaper Mechanical Conference—Direct pressure and needs of photo-engraver receive attention

By FRANCIS J. BRITTON

COLOR—color—more color—best describes the proceedings of the eighth New England Newspaper Mechanical Conference which took place at the Hotel Statler, Boston, on Saturday and Sunday, October 5 and 6. Over 500 newspaper mechanical and manufacturer representatives listened to prepared papers and discussed color in daily newspapers to a greater length than at any time in New England newspaper history. In all five departmental clinics the major portion was devoted to it and a large display of two, three and four-color advertisements which have been printed in the Indianapolis *Star* were on display through the courtesy of F. Lester Yeager, Production Manager, who also spoke on the topic during the Pressroom clinic and again at the general session held on Sunday afternoon. To add to the color of the conference the Composing Room clinic took up the subject of using brighter colors on equipment and in dressing up plants.

George L. Green, Production Manager of the Providence, R. I., *Journal* and President of the conference, headed the committees in charge of the proceedings. William F. Madden, composing room foreman of the Worcester (Mass.) *Telegram-Gazette*, was elected President for the 1947 conference, and George F. Marshall, Portland (Me.) *Press-Herald*, as Vice President. William F. Porter, New Haven (Conn.) *Register*, was named Program Chairman for 1947, and Walter C. Crighton of New London (Conn.) *Day*, was again re-elected Secretary-Treasurer. Howard E. Simons, Waterbury (Conn.) *Republican-American*, and President George L. Green were elected new Directors.

The conference opened Saturday afternoon with registration and informal get-togethers and committee meetings by clinic chairmen. Saturday evening a program of entertainment and refreshments took place in the Main Ballroom of the hotel. Herbert T. Stanger of the *Christian Science Monitor* and Richard M. Fitzgerald of the Worcester (Mass.) *Telegram-Gazette*, were in charge with the supply and equipment manufacturers as hosts.

A new idea was put to test at the Sunday morning departmental clinics by Program Chairman William F. Madden in an attempt to get these meetings under way on scheduled time. A door prize was offered at each clinic but the winners had to be in the room 10 min. after the gavel first sounded. The meetings opened at 9:30 a.m., and 10 min. later the chairmen cut off the giving out of tickets for the drawings. The idea was the means for getting them all into the meeting rooms on time.

Sunday afternoon was devoted to a general session during which inter-departmental questions were discussed and color again took a leading part.

The annual banquet and business meeting was held Sunday night with President Green presiding. One of the features of this session was the presentation of a traveling brief case to Walter "Pop" Crighton by the president in behalf of the members for the splendid work "Pop" has done for the conference since its inception eight years ago.

The speaker was John Gould, publisher of the Lisbon Falls (Me.) *Enterprise* and author of the best selling book, *The Farmer Takes A Wife*. His talk dealt with his history as an author and how he became publisher of *The Pixilated Weekly*. It was a great night cap to the 1946 conference, breaking away from the mechanical problems which had dominated the talk during the day.

At a meeting of the directors following the conference the dates for 1947 were set for November 8 and 9, 1947—the only dates available at the hotel.

Composing Room Machinist Clinic

CHAIRMAN Raymond J. Cox, Bangor (Me.) *News*, opened the meeting by introducing Carl Braga as co-chairman for the machinist end of the clinic. The chairman called upon Thomas McGarry of the New York *Times* for remarks to open the meeting. Mr. McGarry told of his career in the business which started in New England and then started the question and answer period off.

The first question was what had been done to eliminate excessive makeovers. Opinion was that this problem was entirely up to the editorial department, though it would help if something could be done about them.

On the question of sending out ad proofs before they are proof-read, all stated that they cannot afford to wait. They send out the proofs as soon as the ads are set.

The use of the Black and White Matrix Contrast system brought about considerable discussion all of which was in favor of the system, especially the new method of using various colors for different type sizes. Mr. McGarry stated it not only was appreciated by the operators but greatly reduced errors.

Harry Gage, Vice President of Mergenthaler Linotype Co., spoke on the proper selection of type for advertising, telling of the surveys being made by the NAA.

Nine-column classified pages came in for a share of discussion, with the majority stating they would like to get back to the regular eight columns.

J. W. Powers of the Burlington (Vt.) *Free Press* told of his experience in the use of Teletypsetter machines where they are now operating four of them and the results have been so good another is on order.

In the talk about the use of brighter colors in composing rooms, Harry L. Gage told of visiting one plant in the South where the black paint used during war-time blackouts is still in use. The windows were painted also. Light was concentrated on different parts of machines, it being terrible to look at and worse to work with. He told of the effort being made by paint companies to introduce colors into manufacturing plants. He stated we will see a lot of development in the next year or two which is based on optical studies. It is now an established fact that you get less amount of wear and tear on eyes when extreme contrasts are avoided.

Mr. McGarry brought up the matter of better lighting facilities on typesetting machines and Mr. Gage informed the group that they would see that something definite would be done about the situation in the very near future.

During the machinist part of the clinic, Ivan Tetrault of New London (Conn.) *Day* stated he rarely ever removes the mouthpieces from the machines while another said he removed them and cleaned them throughly every six months. Harold Kirmen of the Pawtucket (R. I.) *Times* said he found that deposits will form if they are not removed often and reset. Chairman Braga said he found it not only easier to keep them clean but that the printed results were better. Another said he hadn't removed any for five years and still got the desired results.

On the question of how often mouthpiece jets should be drilled, Mr. Miller of the Providence (R. I.) *Journal* explained he went over the machines every week or so.

Mechanical Executives

The editor invites you to submit production or mechanical ideas which have been devised in your plant. You may help other executives with their work.

Executives from Newspapers, Manufacturers and Suppliers Attending New England Mechanical Conference. (All people designated left to right:)

1—Fred Dunham, N. E. Manager Ludlow Typograph Co.; Gus McNamee and Charles Christie, Providence (R.I.) *Journal;* Bill Saunders, jr., New York Typographical Union.

2—Raymond J. Cox, Bangor (Me.) *News;* Carl Braga, Woonsocket (R.I.) *Call;* Lester Yeager, Indianapolis (Ind.) *Star;* Kenyon C. Ottoway, Bridgeport (Conn.) *Herald;* John B. Enright, Waterbury (Conn.) *Republican-American.*

3—Joseph W. Addison, Hartford (Conn.) *Times,* Hiram H. Weymouth, Kennebec (Me.) *Journal;* William H. Street, Vice President, and Fred Home, United American Metals Corp.

4—William Porter, New Haven (Conn.) *Register,* 1947 program chairman; Russell Costello, Lewiston (Me.) *Sun-Journal;* Francis J. Britton, Manager, Boston, Suburban Quality Newspapers.

5—W. G. Dodge, International Paper Sales Co.; M. J. Lalone, Empire Laboratories; George Green, Providence (R.I.) *Journal;* G. E. Donnelly and W. H. James, New York *Daily News.*

6—George A. Crooker, Quincy (Mass.) *Patriot-Ledger;* Ray Finzer, Wood Flong Corp.; Walter Parry, Quincy *Patriot-Ledger;* Rupert Roaf, *Christian Science Monitor,* Boston.

7—T. M. Broadston, Vulcan Proofing Co.; A. L. Imshaug, Springfield (Mass.) Newspapers; L. D. Wright, Goss Printing Press Co.; John A. Rogers, United States Printing Ink Corp.

Pressroom Clinic

JOHN B. ENRIGHT, pressroom foreman of the Waterbury (Conn.) *Republican-American*, was chairman. Kenyon C. Ottoway of the Bridgeport (Conn.) *Herald*, was the first speaker and his topic was *Controlling Register On Color Work*. "I picked this topic because it is the one single thing which makes or breaks the color job," said Mr. Ottoway. "Usually, how well a job can be registered is decided before it gets to the pressroom. How much care the stereotyper takes in laying out mats and casting plates is a big factor. Often they are licked before starting, due to the apparent indifference on the part of some of the syndicates which send out mats having varying degrees of moisture and molded depth.

"In our plant most of the jobs come to us in the form of zinc plates. These are molded by direct pressure. We used to have a rolling machine. Mats made by this method are harder to control, due to stretch and subsequent shrinkage. You may have had perfect plates made this way, but, we have 1900 mats a month and over that period of time, your average will be much better with direct pressure molded mats dried on the form.

"All of our plates are cast in a vacuum box. They are then bevelled on both ends on a trimmer equipped with pointers. Key plates are positioned by means of these pointers. Then the three-color plates are cut with the same setting. Often a set of plates made by this method are in excellent register when placed on the press. The few syndicate mats we use give no end of trouble and often, in spite of the stereotyper's best efforts, are unregisterable."

Pointing out that the most important factor in holding register on any press is cylinder diameter, the speaker continued, "In our plant we run soft and semi-hard packing. We have found on soft packing that the impression cylinder should be about 0.020 in. larger in diameter than the plate cylinder. This means with normal impression of 0.010 in. to 0.012 in., cylinders are running as even diameters at the point of contact. On semi-hard packing we pack the impression cylinder to make the diameter about 0.004 in. larger than the plate cylinder. With only .004 of impression, plus make ready, these two cylinders are running as two even circles at the point of contact. This does not apply to only one couple, but to all couples any one web passes through."

"You should keep a close check on plate thickness. If you are using 7/16 in. plates, be sure they are 0.4375 in. thick, and if you use 1/4 in. plates, be sure they are 0.250 in. thick. Also try to keep the wrap of the sheet on the impression cylinders the same.

"In any color work correct uniform tension is necessary to good registration. Any automatic tension device will aid in holding register."

F. Lester Yeager, Production Manager of the Indianapolis (Ind.) *Star*, spoke on the use of color in daily newspapers. He pointed out that good newspaper color work does not start in the pressroom. It is vitally necessary for much planning to be done. First, in the most effective use planned for it; next, in the preparation of the art work, the engraving and the stereotyping. After all that is done, then the pressroom makes the final effort to deliver a good product.

Mr. Yeager took issue with those who claimed newspaper color is not good enough in quality to reproduce results that justify its costs by citing two examples proving that judicious use of color could pay dividends. Careful check of the results showed in the two instances showed that the color ad produced eighteen times the dollar volume sales as the black and white. On the other hand, an advertiser in making a test of the value of color selected an item that would only appeal to about five per cent of the readers under the best of conditions. It was a lady's beaded bag for use with formal dress. The result was that the additional sales did not pay for the additional cost of the color.

"If the advertiser can get eighteen times as much business from color as he can from black and white, then it looks like he should be happy to pay charges for color," continued Mr. Yeager. "In cases where such increases in sales volumes result, the newspaper would certainly be within reason to charge three or four times the black and white rate. Doing that would eliminate the use of color by those who do not make judicious use of it. This would still keep with us us those who are willing to pay for the best color plates and the best kind of work. It is my opinion that one of the things that has held back the development of better newspaper color is the use of it by those who are unwilling to pay the cost of the finest color plates. Instead, they use something patched up or put together in the stereotype room such as colored borders, overprints, prices in color, etc. Those things were all right when we were first getting into color and feeling our way to see what we could do, I do not believe such color has added sales appeal in this day and age. You seldom see that kind of color in the magazines. If we attempt to compete with magazine color appeal, we must use color plates and art work of similar quality."

The speaker added that it was his idea that thought should be given to ways and means of cutting down the expense of making color plates to advertisers through the use of some sort of an exchange, where possible, or perhaps some type of mat service. If such were possible then the use of good color work would be developed much quicker throughout the entire country in the daily field.

Mr. Yeager told of the equipment used in the *Star* plant to produce the two, three and four-color advertisements which were on display in the room. Many of those in attendance were amazed at the statement that up to the present time no special equipment with the exception of two portable fountains were used to produce the work. During the discussion period which followed, Mr. Yeager told the group that while he knew much better work could be produced with new type of color equipment it was not essential to reproduce four-color process work in daily plants.

In answer to the question on the time element, Mr. Yeager said the *Star* pressroom crew went to work two and a half hours earlier when there was color work, still making deadlines.

Stereotype Clinic

RUPERT M. ROAF, stereotype foreman, *Christian Science Monitor*, acted as chairman. First speaker was Charles S. Davis of the Lake Erie Engineering Corp., who spoke on *Direct Pressure Molding*. The speaker listed the following five points which have prevented the industry from adopting the necessary equipment sooner. First, failure of the Birotadruck in 1924. Second, the inability to believe statements as to the speed of such molding machines. Third, the confusion between hot and cold molding as applied to direct pressure method. Four, confusion as to relative shrinkage of mats molded on the roller and under direct pressure. Five, inability of stereotypers to convince themselves of the superiority of reproduction offered by direct pressure molding.

Speed of molding can be proved by users whereas 10 or 12 years ago slide rules were the only proof. "Direct pressure units require 7 sec. for pressure application, that is measured from the time the form and mat are under the press until the moment when full pressure is reached over the entire page. The complete molding cycle, starting from the time the mat is placed on the form, until it is removed, requires as little as 15 sec. As a result, several users have openly stated they are getting double the production of a roller. If their presses are provided with a rear table and controls, even further production may be expected," the speaker continued.

Mr. Davis said most European newspapers, normally mold and dry the mat on the form while in the machine. They meet deadlines by having two or three molding presses, thereby getting mats at the rate of one per minute.

On mat shrinkage in using direct pressure methods Mr. Davis said, "The longer a mat is held on a form, with the application of some heat, the less will be the ultimate shrinkage in scorchers, all other things being equal. It is possible to employ a limited amount of partial drying in the press while maintaining previously established standards of shrinkage. This can be done simply by starting with the mat having greater moisture

I. Tornberg, Vice President of Wood Newspaper Machinery Corp., tells New England newspaper mechanical conference how to pre-register newspaper color plates.

content than usual. Roughly speaking, it will have the same moisture content and shrinkage ability when it is removed after partial drying as it would have molded cold.

"However, nearly all newspaper men with whom I have talked, have agreed that if we are going to do a better job of stereotype and newspaper printing, we must get away from excessive shrinkage. The day will come when we will duplicate the original as to size as well as to sharpness and detail."

Chairman Roaf then introduced the second speaker, Frank Tighe of the Certified Dry Mat Corp., who spoke on the possibility of the use of electronics in mat drying.

"Certain applications of electronics are now in use in the drying of ink and for electric dye controls, said Mr. Tighe. "It is only natural for one to consider first, the possibilities of electronics in the field where one has had the most experience, in the manipulation of stereotype matrix. Electronics are used in dealing with two broad fields of materials, first electrical conductors and second, none-conductors or dielectrics. Most metals are conductors and their treatment is made at current frequencies of less than 1,000,000 or one megacycle per second. Stereotype matrices are dielectric and their treatment must be at frequencies between 13 and 50 megacycles.

"It is very interesting to see the effect of high frequency alternating current on a dielectric like a matrix. The molecules of a mat fibre try to align themselves to the alternating field, rubbing themselves together with each cycle or reversal of polarity. Thus, a pronounced molecular friction is set up. Since every molecule of the mat is affected equally, the generation of heat in the mat is extremely uniform. It is also very rapid since it is possible to raise internal temperature of a mat to around 200 degree Fahrenheit in about two seconds."

Mr. Tighe told of a fairly recent development in pre-scorching by use of the infra-red ray.

He also told of the possibility of using electronics to heat matrices before they are molded. "Without the speed of electronic heat, the idea of preheating a mat before it is molded would be ludicrous. Before it could be brought to 212 deg. by convection of radiant heat, the mat would be so dry and hard that it would be impossible to make a deep mold. Since it is possible to raise the temperature of the mat to 212 deg. in a few seconds by placing it in the proper electronic field, no appreciable moisture would be lost in this short time. A mat so treated would be in optimum for molding. It would be soft and thus easy to mold, flowing readily into the bowls of letters and the cups of reverse dots. A greater depth in the mat should be obtained than ever before possible and with considerably less pressure.

"After the pre-heated mat is molded, the problem of drying it thoroughly and quickly, becomes much easier because every molecule in the mat, as well as every molecule in the water it contains, has been preheated to 212 deg. Compare the problem of drying a mat in this condition with one whose temperature was around 70 deg. just after molding. When the mat is removed from the press, it will be possible to remove any remaining moisture and to prepare it for casting in a matter of seconds", concluded Mr. Tighe.

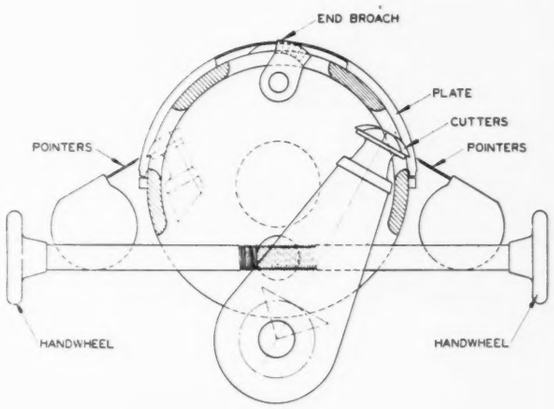
Tornberg Discusses Color Equipment

I. Tornberg, Vice President of Wood Newspaper Machinery Corporation, discussed equipment in newspaper color plate making with particular emphasis on register of the plates. He said: "The essential controlling factor about color in a daily newspaper from the production viewpoint is register. Misregister of black and one color may sometimes be passable, sometimes entirely unacceptable, according to the nature of the copy.

"Misregister of black and two or three colors must almost always be disastrous. Not having color to offer, or offering misregistered color leads to the same end result.

"It will not be color that suffers—it will be the newspapers that suffer. Advertising revenue simply will be diverted to those media that do render color subjects in satisfactory register."

By means of stereopticon slides, Mr. Tornberg exhibited the workings of the new Wood Color Plate Preregistering machine and the Wood Tensionplate Automiller. The latter machine mills pockets in the plates so the Goss Tensionplate Fingers can hold the plate on the press cylinder under constant tension. The Wood Automiller may be provided with a preregistering attach-



Side diagram of new Wood Pre-registering Tensionplate Automiller. This machine mills pockets for tension lock-up, and also preregisters sets of newspaper stereotype color plates.

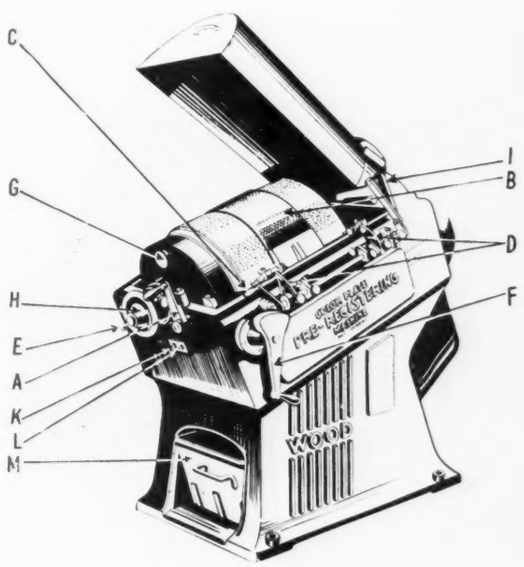


Diagram of Wood Color-Plate Pre-registering Machine, with hood raised and plate in position.

A Clamping Lever, which controls
B Locking Strap.
C Handles, which control.
D Pointers (2 on each side).
E Cylinder Lock Release Lever.
F Crank (Rotates cylinder).
G Wheel (moves plate circumferentially).
H Wheel (moves plate longitudinally).
J Safety device mechanism.
K Push Button—Start Motor.
L Push Button—Stop Motor.
M Chip Pan.

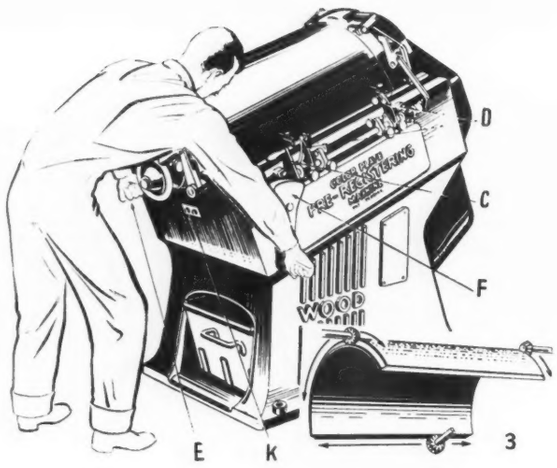


Diagram shows operator trimming a stereotype color plate on the new Wood Color Plate Pre-registering Machine. In the insert are shown positions of the three edge trimming saws.

ment which can be used to preregister stereotype color plates as well as milling the pockets for the Goss Tensionplate lockup.

In closing, Mr. Tornberg summarized his discussion by stating:

1. You *need* color, and it must be *good* color.
2. *Good* color is primarily good *register*.
3. Don't use your *printing* press for a *proving* press—instead, Pre-register your color plates in the stereotype department—*before* the pressroom gets them.

The final speaker was Howard Simons of the Eastern Color Printing Co., who told those present that they would be forced into color regardless of their likes and dislikes. He told them he knew of campaigns calling for two, three and four colors that would come up in the next year or so.

He spoke of the handicaps caused by the various measurements of sizes used by newspapers, artists and all down the line, causing the necessity of striking a happy medium somewhere along the line, making it next to impossible to produce the best results. He stated "it is necessary, as we progress in color, to try to enforce standardization, I don't believe that we are going to get rid of our headaches until that is done."

He told of the troubles encountered by various shrinkages in matrices and the different measurements used by syndicates, all making it just that much more difficult to produce the desired results.

Engraving Clinic

FRANCIS E. BRANNIGAN of the Portland, (Me.) *Press-Herald*, presided as chairman and Charles Staley, New Haven (Conn.) *Register*, as aide. The first part of this meeting was turned over to the showing of the Eastman Kodak film, *Modern Photo-engraving*. Jack Groet of that company told of the new Ektachrone film.

The next speaker was Harry Crosby of the New York Daily *News*, who was one of the few speakers during the conference to get away from color work. A summary of his address is as follows:

Today most people are color-conscious. It may seem unusual, therefore, that I should elect to speak not of color but of black-and-white newspaper printing. I am doing so because I believe that, in most cases, we who are talking color for daily papers are getting ahead of ourselves. For the time being, it would seem logical to concentrate on improving black-and-white reproduction in the photoengraving field.

Assuming that the copy is properly prepared, the first step is the production of a well-balanced screen negative.

If you were to submit the same copy to ten operators, you would probably find that estimates of the proper total exposure would vary from fifteen to thirty seconds, according to the individual judgement of each operator.

It seems to me that instead of taking this situation for granted, we should do something about it. Specifically, we should strive for a mechanical device which would predetermine proper exposures for a given subject. With photoelectric cells which are available today, it should be possible to construct an instrument which would measure the reflective values of the highlight, the middletone and the shadow areas in such a way that they could be correlated with the exposures necessary to a balanced negative.

With regard to stripping I would ask, is it necessary that we manually insert negatives into one another, or is there any way of doing it photographically?

With the advent of strip-film and it's lack of density, we were and still are confronted with an additional variable which requires skill and care to overcome. One of the principal difficulties has been the photosensitive materials used for the resist. Wide fluctuations in results are common experience. Variations are evident in exposure and development times, acid resistance and sensitivity to climatic conditions of high temperature and humidity. Some time ago, at my suggestion, a research laboratory in New York began to experiment with photosensitive materials with the object of developing one which might eliminate some of these difficulties. After more than a year of work, they have submitted a product which is now undergoing extensive tests in our shop. As far as we have been able to determine, this product is markedly superior to that which we regularly make for ourselves and also to any commercial product with which I am familiar. It's outstanding characteristic is a very hard and dense formation of the film in the exposed areas of the plate. The degree of hardness is such that it is difficult to remove the film from a freshly developed plate except by the use of abrasive materials. This enables it to be left in the developing bath for a much longer period. For example—although it's normal developing time is 3 min. at 80 deg. F., it retains the image intact with development times as high as 10 to 15 min. If, on a given flat, there are negatives of wide variation in density, it is ordinarily difficult, if not impossible, to obtain an acceptable print by using one exposure for the whole flat. With this material it has been possible to get good results with one exposure merely by longer development. Apparently the long development acts as a corrective for what would ordinarily be an overexposure of the weak negatives on the flat. The areas of the plate which are affected by light through the transparent parts of the negative remain hard and insoluble in the developer, but the fringes around these areas are dissolved out by the extended development. The new product is being tested in the laboratory under conditions approximating severe summer weather. The results indicate that coated plates remain usable up to 1 hr. storage time at 100 deg. F. and 80% r. h. Under these conditions our regular plates cannot be stored more than a few minutes before they become useless. I am advised that, although more comparative testing remains to be done, this product will probably be on the market within the next few months. Although manufacturers have made efforts to standardize materials for etching, there are still variations which leave us with the problem of variyng technique. Not only do the materials vary, but so does the technique of each individual operator. For example, consider the problem of powdering and burning in. It seems to me that it is difficult to set the etching powder, or dragon's blood, uniformly on a gas stove. By means of a surface pyrometer we found that between five etchers, the burning-in temperatures ranged all the way from 150 deg. to 425 deg. F. Variations as much as 112 deg. were found on successive plates handled by the same etcher. It is evident that our present method of fusing powder on a gas stove is inadequate and that we need modern equipment which will enable us to control burning in temperatures.

The acid bath is a point of variability which could be eliminated with the help of modern control instruments, if somebody were to take the time to develop them. On the occasion of a series of tests, we once found that five etchers formu-

lated their baths in acid concentrations ranging from 8% to 15% acid content. Baths were also thrown out at concentrations of from 4% to 10%. A simple indicating instrument, which would show the acid strength of the bath, would do much to put the etching operation on a standard basis.

If you feel that it is not your function to engage in experimental work, or so-called research, there is the alternative of submitting your problems to a competent commercial research organization, the cost of which, obviously, must be borne equally, or on a pro rata basis among yourselves. To my knowledge, no mechanical problem in the graphic arts is ever solved by the mere discussion of it. If I may be forgiven, some of the same problems come up year after year. When these meetings are over, we find we have done no more than restate the same old headaches and troubles, that have been with us for a long time. Real results are attained, by individuals or groups, actively pursuing the problems in the plant, the laboratory, or in both. Such efforts are of the nature of trial and error, with many discouraging failures before any degree of success is attained. Nevertheless, the rewards of persistent experimental effort in the long run are a good deal more substantial than those of eternal discussion.

Claude Peltis of the Chemco Photoproducts Co., was the third and final speaker on the program.

During the discussion period which followed the three speakers many of those present voiced their desire to have a committee or committees work on the problems which are discussed each year at the engravers clinic and to bring back a report the following year. It was also urged by some that such committees work on problems and ideas and incorporate their findings in a booklet that would become somewhat of a standard reference for those in the engravers trade. These were to be referred to the directors for consideration.

One member stated he found the worst trouble with newspaper work has been lack of density and halation, due to the cheaper film used on newspaper work. With commercial work, while newspaper men were having untold troubles, he had no trouble. This was because he was using better film and still printed with cold top—the same cold top on the same zinc, during all kinds of weather. He claimed the commercial work went on when newspaper work was at a standstill because of all kinds of trouble. He added it was his thought that the speed gained with cheaper film should be overruled by the better quality possible from a more expensive film used with cold top on zinc.

Charlie Williamson of the Boston *Post*, stressed that engravers should not forget the basic fundamentals of engraving, especially when it came to mixing solutions, as it was one way of elimination of trouble at times. He stated if one having troubles would bother to mix his own materials he could trace the cause of such trouble much faster than if he was using ready-mix and not knowing whether it was exactly the same as he had been working with.

The need for a practicable reflectometer which could be easily used in the measuring of the middletones as well as the highlights and blacks was stressed as something that would help.

Tubular Clinic

THIS session was presided over by Glen Magoon of the Fitchburg (Mass.) *Sentinel*. Joseph F. Lawson of the Quincy (Mass.) *Patriot-Ledger*, told his listeners of some of the trouble-spots encountered in his work and how he had overcome them. He pointed out that too many men carry their plates over the 0.375 in. thickness as prescribed by press makers. They think that by so doing it is easier to slide the plates on the cylinders. By keeping the plates at the correct thickness better results are obtainable with packing of 0.170 in. thick.

"I believe the answer to better printing and better running presses lies in the plate. We must come to more firmer molding combinations, harder corks, etc., and harder packings on our presses will come with it. I am death on these so-called creepers in molding combinations. With the harder combinations it is possible to maintain that 0.375 in. thickness plate we are all looking for with greater ease," he concluded.

During the discussion period which followed, Ray Finzer of the Wood Flong Corp., urged the use of high furniture which would allow the use of harder molding combinations without getting excessive dents to bolsters. He added that too deep bolsters do not make for perfect contour of the plates.

A question which brought about considerable discussion was what to do if the yoke on the mat roller broke down. As most of these papers are of the smaller size they do not have more than one machine available. Several told of either having used 2 in. by 4 in. planks wedged tightly to the ceiling. Mr. Maxwell of Waterville said the best way out would be to beat in the dry mat with a brush similar to the old wet mat method.

Jack Gormly of the Greenfield (Mass.) *Recorder*, spoke of the springing of plates when removing from the core of the casting box, stating that one of the main reason for making this necessary was in the cooling of the plate. Arthur Kohler of the Waltham Tribune told of replacing the pipes in the casting box to eliminate this trouble.

One party asked whether it was necessary to replace the underpacking every time a new top blanket was put on, in the use of a two-piece combination. Mr. Lawson informed him that he had always found the bottom blanket took the worst beating of the two and it was false economy to attempt to replace only the top. Chairman Magoon stated he had found it best to reblanket the entire press at the same time for the best results.

Sunday Afternoon General Session

CO-CHAIRMAN for this meeting were William F. Madden, Worcester *Telegram-Gazette*, and George Marshall, Portland *Press-Herald*. This session opened with a discussion about the use of color in composing rooms and in the painting of equipment. Herbert Stanger of the *Christian Science Monitor*, explained the machine shop had been painted in light green and fluorescent lights have been installed while the impression one might get upon entering the room was that of entering a boudoir, one really likes it when working in it. The lathe and other machinery in the room have been painted a darker green. The machinist, Mr. Gongaware, went on to explain that it is much easier to work with. He added that while the equipment is dark green the operating levers are painted canary yellow; the push buttons are burnt orange and the stop buttons are red.

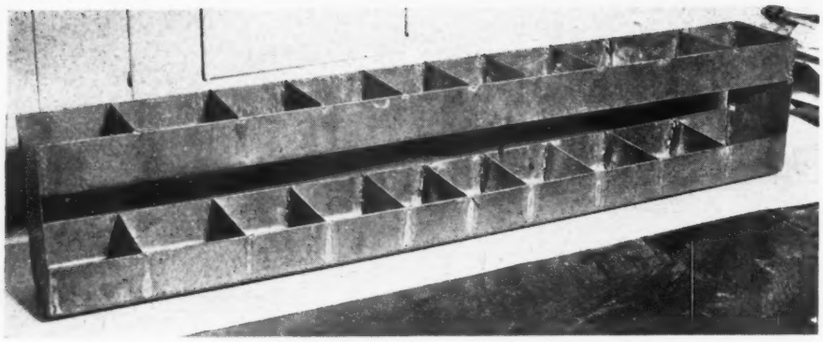
F. Lester Yeager also was called upon to repeat much of what he told the men in the press room clinic in the morning, using the display of color advertisements to demonstrate his point.

In answer to Mr. Grenier's question as to what causes first impression slur, Mr. Yeager answered that in his opinion it was just plain dirt, stating "you are printing on the first side and you get scum on the sheet—it passes over the second blanket and this gets dirty. The first thing you know, it's just like a sheet of carbon. Then you try to run a web over that dirty first side blanket, put pressure on it and print the second side without picking up the dirt. You can't do it."

Temperature and Humidity in the Plate Department

(Excerpt from the technical panel discussion at the 41st Annual Convention of the Lithographers' National Association in Atlantic City, N. J., May 1946.)

In covering the advantages of controlled temperature and humidity in the plate department, Paul W. Dorst of the Lithographic Technical Foundation, pointed out that with such control the sensitivity of the plate coating is held the same, and the exposure produces the same effect on the plate. With no control, when humidity goes up, plates have to be finished in a much shorter time and they are much more sensitive. Though temperature affects albumin plates very little, the development rate of deep-etch plates is affected. Keeping humidity below 50 per cent was advisable, but work could be done below 55 or 60 per cent relative humidity. If plates had to be kept in the photo-composing machine a long time, the lower the humidity the better.



View of double-deck quad and space rack used in composing room of the Flint (Mich.) *Journal*. The bottom of each deck is rounded to permit easy extraction of spacing material. Each box is approx. 4 in. by 4 in. by 2½ in. deep. Partitions are spot-welded.

Type Case Has Been Rearranged for Newspaper Advertising Composition

By AL P. OBERG*

**Composing Room Superintendent, Flint (Mich.) Journal*

EVERY ad compositor, at one time or another, has expressed himself as wondering why, while manufacturers of other products have adapted their product to the needs of the day, those manufacturers who cater to the printing industry, particularly to composing rooms, have clung so stubbornly to the same type of equipment that was developed many years ago.

For example, what has been developed in the past 50 years in the way of adequate and improved equipment for the production of newspaper ads? For the use of the large percentage of newspaper composing rooms, where display type comes largely from the Monotype, has any equipment manufacturer ever thought of, or introduced, a type case improved in layout over the old California job case? Has he tried to develop a case layout that eliminates the weaknesses of that antique layout? Of course not—if a forked stick was good enough for old grandpa to plow with, why isn't it good enough now?

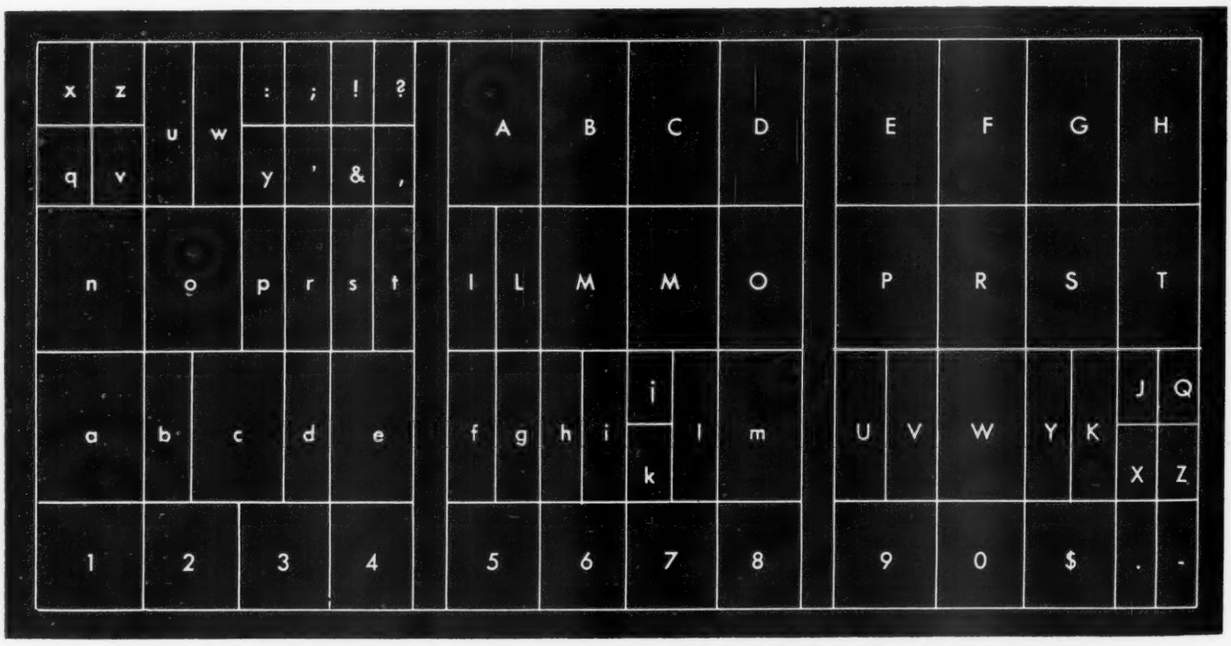
And so the ad compositor is faced with cases that are empty of some letters, while the rest of the boxes contain type that has been there since the cases were installed. It is said that criticism is only fair if it is constructive. May we make some suggestions and cite some experiences along that line?

We interested our head Monotype man, C. Leo Bauer, in the problem outlined above. He at once went to work on it, and came up with what we consider an ideal type case for newspaper ad alleys. As can be seen from a glance at the accompanying sketch the sizes and locations of the boxes vary radically from the old California layout. Experience proves that the material most frequently used in ad composition is figures for prices. Consequently, these are located at the front of the case, and are contained in boxes much larger than those allotted in the old style case. No more picking or prying with tweezers in the extreme rear of the case.

The lower case letters, it will be noted, are very much on the left side of the case, and almost in alphabetical order. The capital letters are on the other side of the case, and the sizes of the boxes have all been redesigned so as to have the larger boxes for the most used letters. Who should know better than the Monotype caster man, what letters he has to supply most frequently? We think Mr. Bauer has put that experience to good use in laying out this case.

It will be noted that no portion of the case is devoted to spaces or quads. The supply of these is taken care of in another way. In our opinion, quad boxes seem to be receptacles for pi and extraneous articles. How many lines of display type do you think could be spaced out with the material furnished in the California layout?

At the Flint *Journal*, we decided that there was a lot of space on the top of the type cabinets which seemed to be used only for pi, parts of stereo casts and junk. With the assistance of our ad foreman,



This diagram shows the rearranged type case layout as used in plant of Flint (Mich.) *Journal*. It is intended for ad work where composition is done largely from cases filled with Monotype-cast type. Note that the figure boxes have been enlarged and are located within easy reach of the compositor. Spaces and quads are not provided for in this case, being taken care of by a separate compartmented rack at the top of the cabinet.

Clarence Siebert, a space rack was designed to fit in the trough of the ad cabinets, illustrations of which accompany this article.

This space rack is constructed of sheet metal of the same gauge as that used for the slug racks on the cabinets (16 ga.) and after being attached, are painted the same color as the slug racks, thus making it a part of the complete cabinet. This is made in a double-deck arrangement, with spacing material for use in setting from 18 to 36 pt. display lines. Obviously, type larger than this needs no such great quantity of spaces, and can be cared for with other space cabinets properly located.

The upper deck of the cabinet contains—measured in points—18x18, 18x9, 18x6, 18x3, 18x2, 24 x 24, 24x12, 24x8, 24x3 and 24x2 spaces. The lower deck contains 30x15, 30x10, 30x6, 30x3, 30x2, 36x18, 36x12, 36x6, 36x3 and 36x2 spaces.

The bottom of each deck is slightly round, to make it easy to slip the spaces out of the boxes. The boxes are approximately 4 in. by 4 in. by 2½ in. deep, are accessible both from the case side and from the working surface on the opposite side, used by the ad man. Partitions are spot welded.

The use of this space rack has eliminated a large percentage of the footwork formerly expended by the adman in walking between the ad cases and the space cabinets formerly used.

Now, if there is a progressive manufacturer of composing room equipment who will start manufacturing this newspaper case, and add the proper space equipment to the type cabinet, we shall have made this newspaper equipment up-to-date from an antiquated position.

View of space and quad rack in position at the top of the type cabinet in composing room of the Flint (Mich.) *Journal*. Compartments are provided spaces and quads for setting from 10 pt. to 36 pt. display lines.

BOOKS

RECEIVED

Advertising Production

ADVERTISING Production by Ben Dalgin, director of art and reproduction, New York *Times* is a practical guide written for those handling advertising, art, or production. The book, however, would be helpful to anyone desiring more information about related crafts in the industry. It gives in clear detail the mechanics of printing production process.

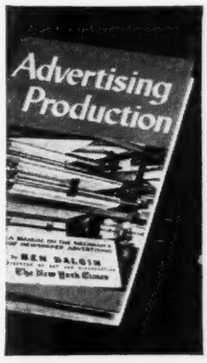
The different processes are discussed from the time the production worker receives the art work and follows the copy through to the finished advertisement as it will appear in a magazine or newspaper.

The principles of photo-engraving are discussed first. Many illustrations show what happens to your copy, and why, at the photo-engravers'. The different types of engravings are described, such as line engravings, halftone screens, bendays and highlights. It also shows how to crop pictures and how to scale to required size.

The type composition for the ad, how to select type, what the point system is and how to fit type to a given space are some of the subjects explained in the chapter entitled Composition of Advertisements.

As duplicate plates may be the next need, the process of making electrotypes and stereotype mats are explained.

What happens to the ad upon receipt by the newspaper office until it leaves the press, with explanations of what constitute good newspaper reproduction are clearly described.



Rotogravure, monotone and color are the processes next discussed. The differences in preparing copy for the rotogravure and the advantages of each process are explained by Mr. Dalgin.

In the chapter, Art Work for Reproduction, Mr. Dalgin says every production worker should have emblazoned on his memory the secret of good newspaper printing is contrast. Photographs with and without retouching are used to illustrate this point.

The final chapter is devoted to the production worker on the job. Many illustrations show the original layout of an actual ad, the copy used with the ad; first proofs; revised proofs; and the ad as it finally appeared in the newspaper.

A glossary for the technical terms is given.

Advertising Production—243 pages, bound in aqua linen, silver stamped. Price, $4. Order direct from McGraw-Hill Book Co., Inc., 330 W. 42nd St., New York 18, N. Y.

Plant Walls

(From address delivered by Robt. W. Dickerson, Cleveland architect and engineer, before 1946 Montreal Craftsmen's convention.)

Walls, like floors, must meet a wide variety of service demands. General office requirements are usually well met by the use of painted plaster walls. For the mechanical departments walls of glazed clay block or tile are ideal. They have structural value, are durable and are easily cleaned. They contribute much to good housekeeping. They are also highly satisfactory for toilet and locker rooms. In certain areas structural masonry walls, painted for better light reflection and paintability are desirable and economical. In decorative wall materials "the sky is the limit," and tastes may be satisfied with marble, tile, metal, wood paneling, flexwood, and a variety of other materials.

Conveyor System Increases Efficiency of Card Manufacturing and Printing

By **FRANCIS A. WESTBROOK**

THE International Business Machines Corporation has a card manufacturing and printing department at its Endicott, N. Y. plant which has recently been modernized and made highly efficient by the installation of a comprehensive conveyor system. Proper arrangement of the machinery and conveyor with respect to each other has been a matter of first importance and interest. Some 80 T. of paper are handled daily and experience has shown that the conveyor system not only speeds up handling but also improves the looks of the department, saves manpower, eliminates a good many accident hazards, conserves space and expedites shipping.

In order to give a clear picture of the operation of the conveyorized card manufacturing and printing department it is advisable to describe briefly the process of manufacturing the cards. The paper, as received from the mill, comes in rolls of two different sizes. One size is approximately 46 in. long and weighs, on the average, 1400 lbs. per roll; the other size is approximately 26 in. long and averages 800 lbs. per roll.

These rolls are unloaded from the freight cars by means of electric power fork lift trucks. They are then taken to the storage area on the first floor and tiered three high. From here the rolls are taken as needed by fork lift truck to the slitter area, also located on the first floor adjacent to the storage space.

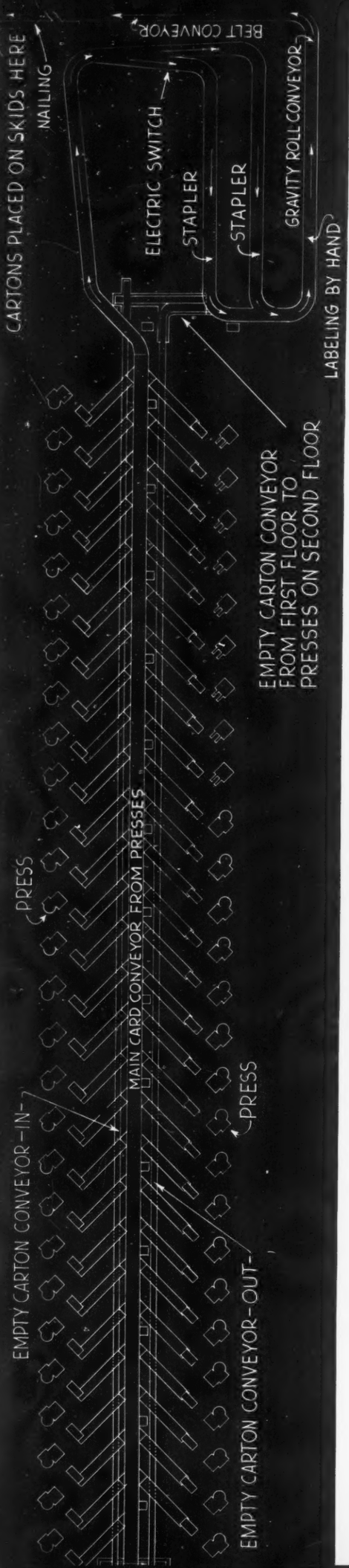
In the slitter area there are three high-speed Kidder slitters which handle the large rolls and cut them into 14 sections without loss. There are also five Swift slitters for the smaller rolls, which are cut into eight wasteless sections. In this way the paper is prepared in the correct size to pass through the high-speed presses for card manufacturing.

The rolls of paper, as they come from the slitters, are put through a special process to prevent the absorption of moisture. This processing department is located on the first floor adjacent to the slitters. The fully prepared rolls of paper are placed on hand trucks, then run on a small electric elevator which takes them to the second floor where they are removed and placed in the storage racks directly back of the presses where they are to be used. The rolls are placed on presses by hand.

The arrangement of the presses, conveyor system and packaging is shown in the diagram. From this it will be seen that there is an empty carton conveyor coming up from the first floor and that this passes around both sides of the main card conveyor leading from the presses to the carton closing end of the production line. There is also a spur from each press to the latter conveyor.

There are two lines of presses arranged as shown in the diagram. There is a total of 57 presses. Although the latter are commonly referred to as presses, they are actually high-speed precision card manufacturing machines. They have a total combined capacity of some billions of cards a year, which when packed in cartons, means approximately 3000 cartons per day to be handled by the conveyor system operating 16 hrs. per day. These figures are for the Endicott plant alone, and there are two other similar plants in Washington, D. C., and San Jose, California, whose combined output about equals the production of Endicott.

The conveyor system in the Endicott plant was designed by the company's plant engineering department in conjunction with the engineers of the Lamson Corporation, Syracuse, N. Y., who built and installed it. It is designed to



Work from the 57 presses flows smoothly along this conveyor and is delivered in package form as shown at upper right of this diagram

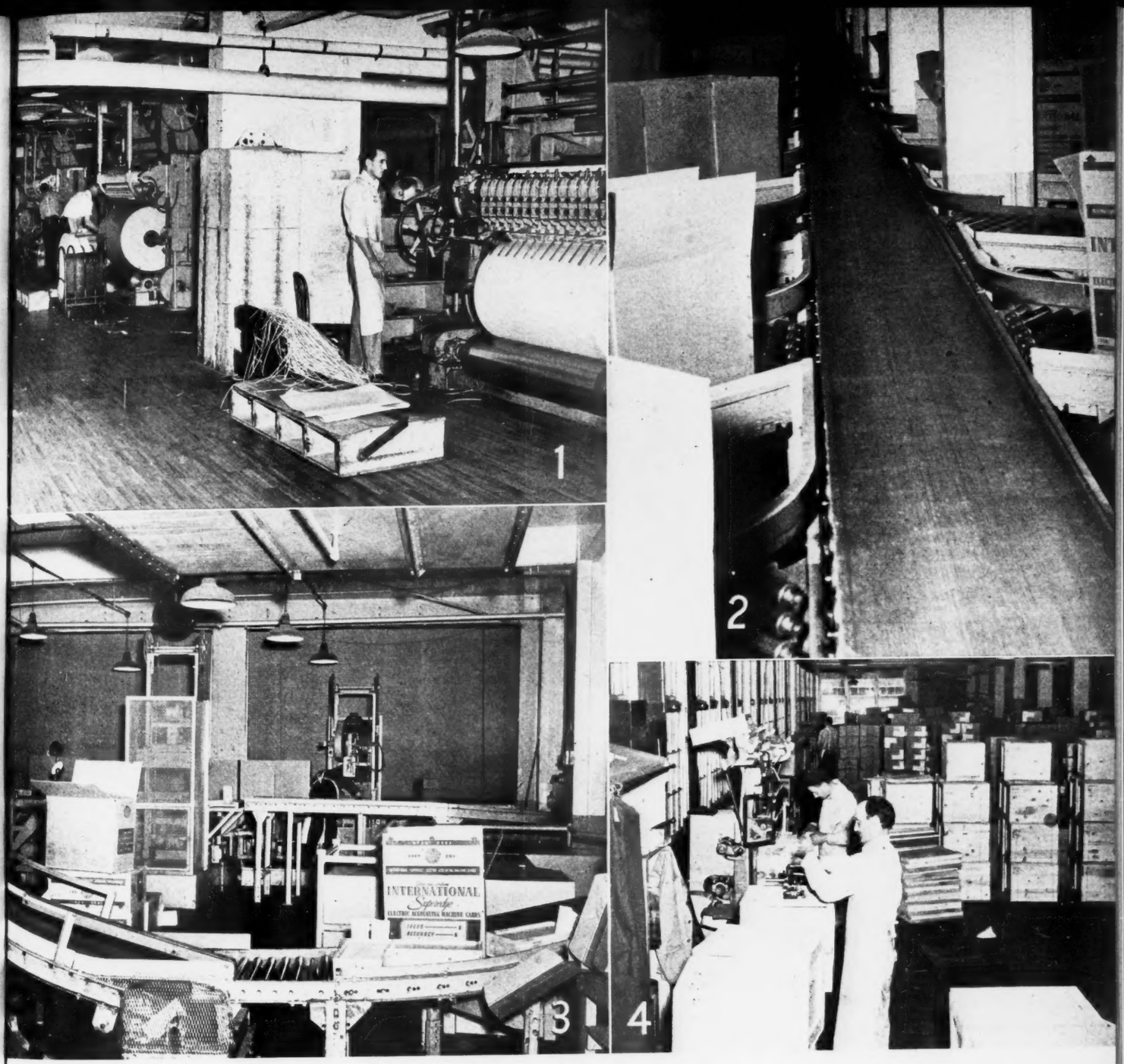
This diagram represents floor plan view of conveyor system in Endicott (N.Y.) plant of International Business Machines Corporation. The plant recently has been modernized. The delivery end of the automatic conveyor discorges as much as 80 T. of business filing cards daily. The cards are fabricated (slit, cut, printed and packed and sealed in properly labeled cartons all ready to be shipped.)

This conveyor assembly is on the second floor of the IBM plant. There is an empty carton conveyor coming up from the first floor passing around both sides of the main card conveyor leading from the presses to the carton closing and of the production line. There is also a spur from each press to the latter conveyor.

As is shown in the diagram, there are two lines of 57 presses (card manufacturing machines) arranged on either side of the conveyors.

The conveyor system is intended for an output of 2½ cartons per min., their size being 18 in. long by 8¼ in. wide by 15½ in. high and weighing about 60 lbs.

The main conveyor on the production end is approx. 185 ft. long using a 20 in. belt and 22 in. rolls. The stapling, labeling and shipping end of the conveyor is approx. 350 ft. long, using the same size belts and rolls.



Views in Card Manufacturing and Printing Department,
International Business Machines Corp., Endicott, N. Y.

Plant recently has been modernized, including installation of a comprehensive conveyor system. Some 80 T. of paper are handled daily.

1—Scene in slitter area. Kidder and Swift machines slit the rolls into 8 or 14 sections (according to width of roll) and rewind them. Slitter knives are so accurately adjusted that there is no stock waste.

2—View of section of main conveyor belt. Belt is 20 in. wide and the production end is approx. 185 ft. long. The stapling, labeling and shipping end is approx. 350 ft. long.

3—Carton closing and labeling section of conveyor. Carton stapling or closing machine shown in background. Labels are applied by hand.

4—Some shipments of cards are packed in wooden boxes. Here the operator is using a nailing machine to fasten on a box lid.

convey empty cartons from the make-up area on the first floor to the presses on the second floor where they are filled by the press operators and sent through the sealing department into storage, as indicated in the diagram. The system is intended for an output of 2½ cartons per min., their size being 18 in. long by 8¼ in. wide by 15½ in. high, and weighing about 60 lbs.

Empty cartons are placed on that part of the system designed to transport them from the makeup area to the presses. This is a belt conveyor of the carousal type. That is, the empty cartons, after being placed in an upright position on this section of the system, keep circulating around under the spurs to each press until removed by an operator. The latter sets the empty carton on the packing table at the press end of the spur where he removes the small cartons that are in it, packs them with finished cards as they come from the press and replaces the small packages in the large carton.

After the packing operation is completed the carton is moved by the operator to the gravity roller spur which, in turn, delivers it to the main belt conveyor. The latter delivers the cartons directly to the stapling machines installed in the conveyor line. It will be seen in the diagram that there is an electrically operated switch by means of which cartons may be sent to either of two stapling machines.

When closed, top and bottom, by the stapling machines the cartons are moved by hand on to a section of gravity roller conveyor which carries them to the labelling section. After being labeled by hand, they are again moved by hand on a gravity roll section to a section of belt conveyor leading to the storage and shipping area. As a few customers wish shipments in wooden boxes, a nailing machine has been installed at the end of the conveyor line as shown in the diagram.

The loading of freight cars and trucks is done by means of Yale Electric Lift Trucks and Automatic Transporters. All shipments and stock are placed on skids as they leave the conveyor line so that they may be readily picked up and handled by the electric trucks.

The main conveyor on the production end is approximately 185 feet long using a 20-inch belt and 22-inch rolls. The stapling, labeling and shipping end of

Griner Resigns

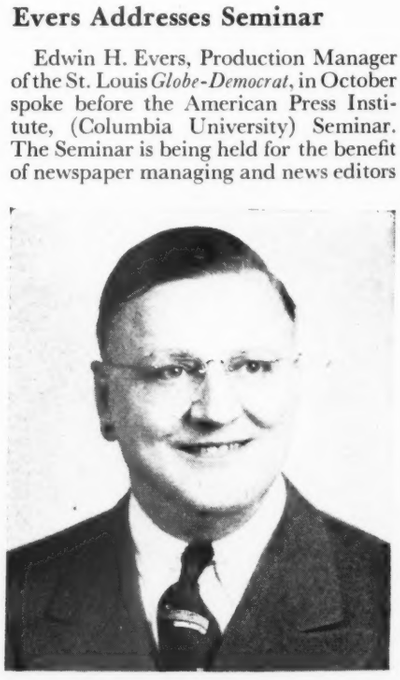
Leslie J. Griner, Assistant to the Publisher of the Fort Wayne (Ind.) *News-Sentinel*, resigned that position early in October. At the time of going to press, Mr. Griner had not announced a new connection. He had held the *News-Sentinel* position for about one year.

Leslie J. Griner

Previously, he had been mechanical superintendent of the Chicago *Sun*. He is a member of the ANPA Mechanical Committee.

Evers Addresses Seminar

Edwin H. Evers, Production Manager of the St. Louis *Globe-Democrat*, in October spoke before the American Press Institute, (Columbia University) Seminar. The Seminar is being held for the benefit of newspaper managing and news editors



Edwin H. Evers

from newspapers in many parts of the country. The first Seminar was held during the three-week period starting September 30. Each is limited to 25 members. Mr. Evers discussed the *Interdependence* of the *Editorial Department* and the *Composing Room*. Mr. Evers is a member of the ANPA Mechanical Committee.

Conference Dates

ANPA Mechanical Conference—Palmer House, Chicago, Ill., June 9, 10, 11, 1947. Worth Coutney, Chairman; Walter E. Wines, Manager, ANPA Mechanical Dept., 370 Lexington Ave., New York 17, N. Y.

International Association of Printing House Craftsmen — 1947 convention city to be announced later. Wm. H. Griffin, President, Griffin Bros., 447 Sansome St., San Francisco, Calif.; Secretary, Pearl E. Oldt, Central High School, Grand Rapids, Mich.

International Trade Composition Association—Frank M. Sherman, Executive Secretary, 1015 Chestnut St., Philadelphia 7, Pa.

Midwest International Stereotypers and Electrotypers — Terre Haute House, Terre Haute, Ind. November 21, 22 and 23.

National Association of Photo Lithographers — Walter Soderstrom, Executive Secretary, 1776 Broadway, New York 19, N. Y.

New England Mechanical Conference—Hotel Statler, Boston, Mass., Nov. 8 and 9, 1947. President, Wm. F. Madden, Composing Room Supt., Worcester, (Mass.) *Telegram-Gazette*. George L. Green, President, Providence (R.I.) *Journal;* Walter C. Crighton, Secretary-Treasurer, New London (Conn.) *Day*.

Northwest Mechanical Conference — Nicollet Hotel, Minneapolis, Minn. Feb. 15, 16 and 17. President, Wm. C. Brown, Mechanical Supt., Minneapolis (Minn.) *Star-Journal;* Vernon Eck, Secretary, 3725 48th Ave. S., Minneapolis 6, Minn. Open to everybody interested in newspaper mechanical production departments.

Pacific Newspaper Mechanical Conference —1947 meeting at Hotel Fairmont, San Francisco, Calif. May 11, 12, 13, 1947. President Ira E. Stuck, San Francisco *Shopping News*.

PNPA Newspaper Mechanical Conference—Wm. N. Hardy, Mgr., Pennsylvania Newspaper Publishers' Assoc., 209 Telegraph Bldg., Harrisburg, Pa.

Printing Industry of America—James R. Brackett, General Manager, 719 Fifteenth St., N. W., Washington 5, D. C.

SNPA (Eastern Div.) Mechanical Conference—Walter C. Johnson, Manager SNPA, P. O. Box 1569, Chattanooga 1, Tenn. Chairman Executive Committee, I. J. Gardner, jr., Composing Room Supt., Chattanooga (Tenn.) *Times*.

SNPA (Western Division) Mechanical Conference—Galveston, Texas. February 17, 1947. Secretary, C. W. Tabb, 723 Texas Bank Bldg., Dallas, Tex. Executive Committee Chairman, F. J. Williamson, San Antonio (Tex.) *Express-News*.

Recent Pictures of Printing Executives Throughout the Country

1—G. E. Leach, Leach Printing Co., Des Moines, Iowa; Alex Alberg, Manager Printing Dept., Unity School of Christianity, Kansas City, Mo.; R. Randolph Karch, Directory of Typography, Intertype Corporation. This picture was taken at recent Montreal Craftsmen's convention.

2—This is an informal portrait of Ray Schoedler, Composing Room Superintendent of the Tampa (Fla.) *Times*. When this picture was taken, Mr. Schoedler was paying a visit to the machinist's department—seems to be in good humor about something.

3—C. Harold Lauck, Manager, Washington and Lee University Press, Lexington, Va.; Fred Baillie, prominent and well-liked Ottawa (Can.) Craftsman; Paul Bennett, associated with Mergenthaler Linotype's typographic department. This picture was taken at recent Montreal Craftsmen's convention.

4—Meeting within a meeting (No, it's not an inner circle). International Supply Salesmen's Guild held meeting concurrently with recent Montreal Craftsmen's convention. Following a breakfast served to the membership (of the Guild) on Tuesday morning, September 10, this picture was snapped by *Printing Equipment Engineer*. Left to right, the gentlemen are: Secretary, Basil Parsons, Thomson National Press Co., Franklin, Mass.; Treasurer, Frank Galvin, Boston; President, Lester A. Neumann, M. & L. Typesetting Corp., Chicago; Vice President, Lee Augustine, Vice President, Printing Machinery Co., Cincinnati.

5—T. C. McLemore, Mechanical Supt., Mobile (Ala.) *Press-Register*.

6—William Schneider, Pressroom Supt., Wm. Feather Printing Co., Cleveland; Neal Wendling, Wendling Printing Co., Ft. Thomas, Ky. This picture was taken early in the year in Cleveland at the time of the Cleveland Club's 25th anniversary celebration.

7—Bert Adair, Superintendent, Manton Bros., Ltd., Toronto, (Ont.) Can.; John W. Morrell, Past President, Montreal Craftsmen's Club; Sidney N. Howe, Superintendent, Warner P. Simpson Co., Columbus, O. Picture taken at recent Montreal Craftsmen's convention.

8—C. L. Gronger, Photo-engraving Supt., Louisville (Ky.) *Courier-Journal* and *Times*. Picture snapped at Jacksonville (Fla.) SNPA (Eastern Div.) Mechanical Conference.

9—Old Friends—Ollie Watson, Superintendent, Brigdens, Ltd., Toronto (Ont.) Can., and also Past President of Intl. Assoc. of Printing House Craftsmen; Walter B. Patterson, Director of Agencies, Mergenthaler Linotype Co. Picture taken at recent Montreal Intl. Craftsmen's Convention.

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the conveyor is approximately 350 feet long, using the same size belt and rolls.

The empty carton or carousel type conveyor is approximately 460 feet long from the starting end to the return end where the cartons start around again. This conveyor uses a 10″ belt and 10″ rolls. The conveyors are driven by drive units manufactured by the Lamson Corporation using 1½ H.P. to 2 H.P. single reduction motors with unibrakes. The motor drives are connected to the conveyor by roller chain and sprockets. The correct speed for the different operations are obtained by changing size of sprockets in the drive assemblies. The belt speeds run from 20 to 120 feet per minute. The belt speed depends on the operation being done on a particular section of the conveyor.

Appointed Distributor

John E. Jones, Executive Vice President of Harry W. Brintnall Company, Inc., has announced appointment as exclusive Pacific Coast distributors of the new Lawson line of paper cutters, multiple head drill slotters and multiple head round hole drilling machines.

Pezdirtz Passes

Joseph Pezdirtz, production manager and member of the Board of Directors of the Des Moines (Ia.) *Register and Tribune*, passed away on Thursday, October 31. Immediate cause of death was a stroke. He had not been in good health for some time. Funeral services were held Monday, November 4 in Des Moines.

Annual Report

The Champion Paper and Fibre Co. has issued its 1946 Annual Report to Champions. The report presents in graphic form the growth of the company over the last 10 years. The graphs are used to show the breakdown of expenditures for the past year, and comparison tables for production and costs, taxes, and reserves are shown for the 10 year period. Many illustrations give an insight into the scope of operations of the company. Recognition is also given to the employees with long continuous service, more than 41% have over 10 years. Size 7¾ in. by 10¾ in., 26 pages.

EXECUTIVE ¶s

At left in this picture is Deo A. Padgett, composing room superintendent, Cleveland Plain Dealer, with his long-time friend, H. E. McDonald, President of Rogers & McDonald Publishers, Inc., Los Angeles, California. At the time this picture was taken Mr. McDonald was paying a visit to his Cleveland friend. Mr. McDonald's firm prints and publishes five newspapers of the suburban type and also does considerable color work for large merchandising firms.

Edward T. Samuel and Edward B. Walker purchased the printing plant and good will of Geo. E. Ryder & Son, Cleveland. The personnel has been retained and will continue to serve under the firm name of Samuel & Walker, Printers, 1459-71 Lakeside Ave., N.E., Cleveland, O. Both associates have wide experience in the printing industry for over 27 years. Mr. Samuel is now serving his second term as treasurer of the International Association of Printing House Craftsmen.

Julian H. Carmichael, of Atlanta, Ga., has recently joined the selling staff of the Howard Flint Ink Co. Mr. Carmichael

Julian H. Carmichael of Atlanta joins Howard Flint Ink Co. sales force.

is acquainted with printers and publishers in the Southeastern part of the country, through years of close contact with the printing trades. His territory will include Atlanta and vicinity. He began his business life at The Ruralist Press. Later he entered the printing ink business, to which he has devoted the past twenty years.

Appointment of Harry F. Gracey as training director of SKF Industries, Inc., was announced today by John Lawrence, factory manager for the ball and roller bearing company. Gracey will have charge of SKF's factory-wide organizational development program. Gracey was graduated from Gettysburg College and received a M. S. degree from the University of Pennsylvania.

Al Sutphin, president of the Braden-Sutphin Ink Co., Cleveland, announces that G. L. Erikson, former plant manager, has been made an executive vice president and chairman of the technical

Executive Vice President of Braden-Sutphin Ink Co., G. L. Erikson.

John L. Reay, Executive Vice President of Braden-Sutphin Ink Co.

committee of National Printing Ink Research Institute. John L. Reay, former sales manager, for the company has also been appointed an executive vice president. Mr. Erikson has been with the Braden-Sutphin Ink Co. for 20 years. During the war he served with the WPB in Washington as Chief of the Printing Ink Unit, Chemicals Bureau. Mr. Erikson has appeared as a speaker before many Graphic Arts groups and has become well-known for his talks on color. Mr. Reay started with the company as a salesman in 1931. He has been an active member of the Craftsmen's Clubs, serving the Columbus Club as president. During the past year he has been International Representative-at-large for the International Association of Printing House Craftsmen and was recently reappointed to his second term.

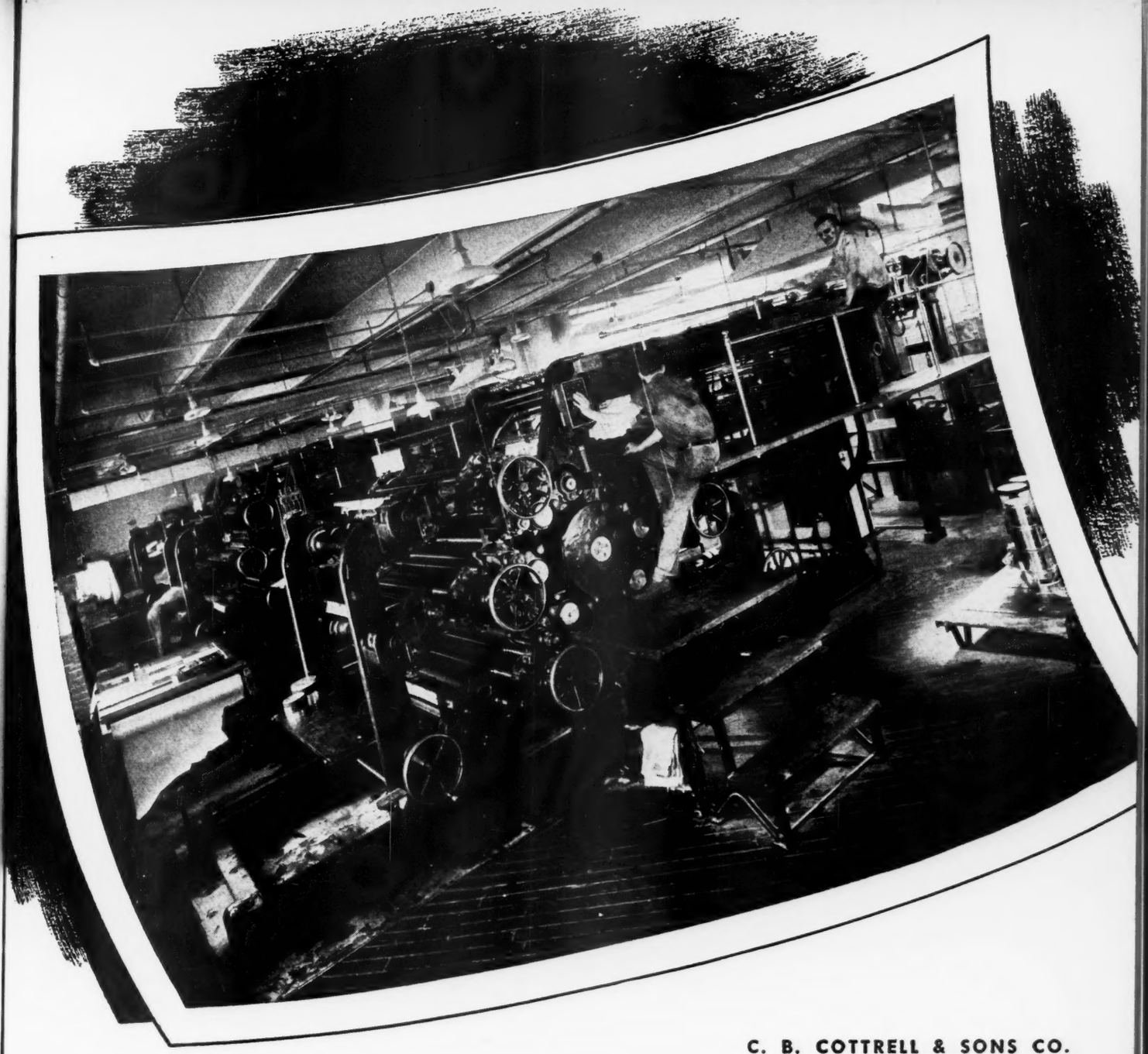
B. Walter Radcliffe, director of typography of Intertype Corporation and editor of *Who's Who in the Composing*

B. W. Radcliffe, editor of Intertype's *Who's Who in The Composing Room*, retires.

Room, retired from a profession in which he has had an eminent career. "Rad's" outstanding contribution to the graphic arts is a tribute to his skill, devotion and love of the profession. He served his composing-room apprenticeship in Macon, Ga. at the J. W. Burke Co. after completing studies at Mercer University. In six years he was made advertising manager. Outstanding examples of his excellent craftsmanship were demonstrated in many fine printing specimens throughout the years. Mr. Radcliffe joined Intertype Corporation as advertising manager in 1925. He now resides at 29 So. Congress St., Athens, O.

F. M. Flynn assumed his new duties as general manager of the New York *Daily News* on September 17. At that time he announced several changes in executive personnel. Philip B. Stephens has been promoted from assistant business manager to business manager. George E. Donnelly, formerly an administrative assistant, is assistant business manager. Mr. Donnelly will continue his work with mechanical production, plans for a new garage and will take over liaison duties formerly handled by Mr. Stephens. Mr. Donnelly joined the *News* in 1938 as an assistant in the mechanical superintendent's office. He served in the ATSC during the war and attained the rank of major. Added responsibilities have been assigned to William Baumrucker in connection with plans for future expansion of mechanical facilities and improving efficiency in operations. Mr. Baumrucker is a graduate of MIT. Alfred H. Savage has been named administrative assistant to the business office. He will assist in matters affecting employee relations, collective bargaining and related problems.

Champlain Co., manufacturers of rotagravure and rotary letterpress equipment, has opened offices at 7 So. Dearborn St., Chicago, Ill. E. T. Coopat, formerly an eastern sales representative for the Champlain Co. will be in charge. He joined the company the first of the year after serving overseas with the U. S. Army as a B-29 navigator.



C. B. COTTRELL & SONS CO.
Westerly, Rhode Island
New York: 25 E. 26th St. • Chicago: Daily News Bldg., 400 W. Madison St. • Claybourn Division: 3713 N. Humboldt Ave., Milwaukee, Wis. • Smyth-Horne, Ltd., 13 Bedford Row, London W.C. 1, Eng.

WHY YOU SHOULD INVEST IN A COTTRELL FIVE COLOR PRESS

. . . Because it has a running speed of up to 5500 sheets per hour with a maximum of production and a minimum of paper waste.

Cottrell

ER 92 YEARS OF GROWING WITH THE PRINTING INDUSTRY

Gordon Montgomery, President of Miller Printing Machinery Co. and Rotogravure Engineering Co.

A. E. Searle, jr., Vice President in Charge of Sales, Miller Printing Machinery Co.

A. A. Saul, Vice President in Charge Engineering, Miller Printing Machinery Co.

R. B. Tullis, Vice President in Charge of Manufacturing, Miller Printing Machinery Co.

C. R. Crow, Treasurer, Miller Printing Machinery Co.

R. M. Merritt, Service Manager, Miller Printing Machinery Co.

For itself and its subsidiary Rotogravure Engineering Co., Miller Printing Machinery Co. announces new executives. The Rotogravure Engineering Co. was acquired by Miller during the last year. The head office is now located in Pittsburgh. The combined average association with Miller Printing Machinery Co. of the new officials is 18 years. Gordon Montgomery was appointed president of the Miller Printing Machinery Co. and Rotogravure Engineering Co. after 14 years as an official of Miller. General management and policies of the company will remain the same. All newly named officers shown in the accompanying illustrations, served in executive capacities for the company.

Capt. Milton F. Antoville, recently discharged from the Army Air Corps, has returned to the staff of the Ever Ready Label Corp. Mr. Antoville represents his company in the New York metropolitan area. He joined Ever Ready in 1940. Prior to entering the service he was production director in the art department.

Executives Hold Meeting to Further Objective of Better Newspaper Advertising Plates and Mats — A clinic to discuss better newspaper printing with advertisers and agency executives was conducted recently at Cincinnati, with more than 150 ad men, art directors and production managers present at the luncheon and dinner sessions.

The first clinic of this kind was conducted in Detroit several months ago; the second in Cincinnati, with subsequent meetings planned for other cities.

The discussions in the various phases of reproduction were led by the men in the photograph. They are, seated left to right: Wm. Mulvaney, Rapid Electrotype Co.; Geo. H. Fuller, Stereotype Supt., Cleveland *Press;* Colin Campbell, Campbell-Ewald Co., Detroit; Harry Blaney, Central Engraving Co., Cincinnati.

Standing, left to right: Walter Scott, Advertisers' Engraving Co., Cincinnati; R. M. Rairigh, McCann-Erickson Co., and Chas. Kirk, Stereotype Foreman, Detroit *News*. The three Cincinnati newspapers sponsored the Clinic.

William E. Bixby, physicist, has joined the staff of Battelle Institute, Columbus, O., where he will be engaged in research in the graphic arts. Mr. Bixby holds a B. S. degree from Northern Illinois State College and was a graduate assistant in physics at Ohio State University.

Two British and three Australian mechanical superintendents were in New York, N. Y. recently to study American printing press methods. They are Bob Affleck, mechanical superintendent of the *News of the World*, London; Tom Parsons, mechanical superintendent of the *News-Chronicle*, London; Walter Denne, mechanical superintendent of the Truth Newspapers, Sydney, Australia; and Roy Abernathy and Charles Bowes, mechanical superintendents of the *Sydney Herald*, Sydney Australia. The visitors are especially interested in newspaper, magazine and rotagravure techniques. They were honored at a luncheon given by Joseph L. Auer, president and Arthur Dressel, vice president and general sales manager, of R. Hoe & Co., Inc. The guests included mechanical superintendents of New York newspapers as well as Hoe executives.

M. H. Clarke has been appointed vice president and director of manufacturing of the Dayton Rubber Mfg. Co., A. L. Freedlander, president, announced recently. Mr. Clarke's duties will include responsibility for the engineering, production, laboratory, traffic, safety and plant protection divisions in all of the company's operations. Prior to joining Dayton Rubber, Clarke was president of the Lake Shore Tire and Rubber Co., Des Moines, Ia.

Miss Grace E. Mahon has been appointed production manager of Appleton, Parsons & Co., Inc., it was announced recently by Dudley L. Parsons, President. Until recently, Miss Mahon served in a similar capacity with William E. Rudge's Sons, printers. Appleton, Parsons & Co., Inc. are graphic arts design and counsel to advertisers and to the

WE REPEAT:

dependability foremost

With machinery, as with men, *dependability* is the foremost quality to be desired.

Today, and down through the years (for sixty years now) the dependable characteristics of *Linotype* have come to be accepted as a matter of course by users throughout the entire world. Such a reputation can exist only when proper materials and expert workmanship combine in a product that stands up to its tasks, often regardless of conditions.

Then, to dependability add flexibility, capacity and precision and the result is the *Blue Streak Linotype*—in various models. There's a *Linotype* for every need.

TRADE LINOTYPE MARK

Linotype Garamond Bold No. 3 and Granjon

BROOKLYN 5, NEW YORK

advertising, public relations and printing professions. Miss Mahon has spent her business career in the printing and related trades. Having learned about "type lice" in her father's shop at the age of five, she left college in 1920 to enter the management of Walters & Mahon, Inc., printers.

Appointment of Harrison Wood as New York district manager for SKF Industries, Inc., ball and roller bearing manufacturers, was announced by R. R. Zisette, general sales manager for the company.—Wood, assistant district manager since 1941, succeeds John D. Williamson, who resigned because of ill health. The district headquarters are at 1976 Broadway. Wood attended Cornell University and joined SKF in 1923 as sales engineer.

N. O. Scourfield, Seybold Division manager, and W. C. Dunn, Cleveland industrialist, have been elected to the

N. O. Scourfield elected to Board of Directors of Harris-Seybold.

W. C. Dunn elected to Harris - Seybold's Board of Directors.

board of directors of the Harris-Seybold Co., according to R. V. Mitchell, chairman of the board. Mr. Scourfield has been associated with the Dayton plant of the Harris-Seybold Co. since 1936. He served successively as division controller and works manager prior to his promotion to division manager in 1944. Mr. Dunn, in addition to being a member of the Harris-Seybold board, holds executive offices in several other Cleveland manufacturing firms. Directors reelected to the board are: R. V. Mitchell, A. S. Harris, G. S. Dively, H. A. Porter, J. W. Valiant, A. T. Colwell, E. D. Rogers, and L. P. Wasserman.

Karl J. Bergström

Karl J. Bergström, Chief Engineer of Ahlen & Akerlund, publishing and printing firm of Stockholm, Sweden, is at present in the United States in the interests of his firm. Mr. Bergström talked interestingly about his firm and the work in which they are engaged. All three printing processes are employed (letterpress, gravure and offset) in printing the various magazines. Some are printed on rotary presses from stereotype plates. Among the publications produced are: *Veckojournalen* (Weekly Journal) 100,000 circulation; *Husmodern* (House Wife) 250,000 copies; *Veckurevyn* (Weekly Review) 300,000 copies; *Se* (Look) 200,000 copies. Mr. Bergström is highly interested in American research for the industry. He paid a visit to Battelle Memorial Institute, Columbus, O., and to Lithographic Technical Foundation at Glessner House, Chicago. His firm expects to install a Hoe rotogravure press as soon as it is ready. Among other printing and publishing plants visited by him were: Crowell-Collier, Springfield, O.; McCall Corp., Dayton, O.; Jersey City Printing Co.; Milwaukee (Wis.) *Journal* and the New York *Times*. He also investigated latest equipment developments in manufacturing plants. Inspection of a number of the publications printed by Ahlen & Akerlund indicates that Swedish printers operate in the modern tempo.

Russell P. Proffitt, since 1933 Chicago divisional manager of The Timken Roller Bearing Co., has been transferred to the Washington, D. C. office as district manager, according to a recent announcement. Proffitt, a mechanical engineer, began his career with Timken in 1923. In 1927, he was transferred to St. Louis as district manager.

David W. Schulkind, president of E. P. Lawson Co. has announced appointment of A. E. Heinsohn, Printing Machinery & Supplies, of Denver, Colo. as distributors in the Rocky Mountain territory of the Lawson line of paper cutters, slotters, and drilling machines. The A. E. Heinsohn Co. has been in business 36 years. Nine employees are engaged in selling activities and seven are printing equipment machinists. Installations and service on Lawson machines will be maintained by Heinsohn.

Intertype Corporation announces that R. G. McCormick, representative in the Midwestern district for many years, has retired. Howard H. Moad will succeed Mr. McCormick in this district. Charles J. Stupka returned to the Intertype Corporation as Chicago representative after serving several years with the Navy.

The officers and executives of Morningstar, Nicol, Inc. and its subsidiary companies, Paisley Products, Inc., of Chicago and New York recently held an informal business meeting and outing at the beach cottage of their vice president, George J. Muller, on Long Island. The affair was climaxed by an outdoor shore dinner and clam-bake, supervised by Charles Frankenbach. Attending the meeting from Chicago were Murray Stempel, C. D. Brown, Sam Schuller, and Earl C. Lenz.

Milprint Buys Nicolet

M. T. Heller, president of Milprint, Milwaukee, Wis. packaging converters, has announced the purchase of the Nicolet Paper Corp. at West DePere, Wis. Milprint will operate the West DePere plant as a wholly owned subsidiary. The amount of the transaction involved was $2,500,000. It is said that the new plant will give Milprint an adequate supply of glassine for packaging purposes. M. T. Heller will succeed C. B. Clark as president and a director of Nicolet. The Nicolet plant has about 300 employees and maintains a sales office in Chicago.

Exposition to Feature Materials Handling Problems

The printing industry's problems of materials handling will receive attention at the first national Materials Handling Exposition to be held at the Public Auditorium, Cleveland, Jan. 14-17.

Printing executives will have an opportunity to see and compare under one roof competing systems and machinery for materials handling. All phases of materials handling will be discussed during the meeting, with special consideration to printing problems. Plant handling of materials, as well as handling for receiving, shipping, loading and warehousing will be discussed and appropriate machinery exhibited on the Exposition floor. On exhibition will be many types of conveyors, hand and power trucks, skids and pallets.

Admission to the sessions may be obtained from the Exposition management, Clapp & Poliak, Inc., 37 Wall Street, New York, N. Y.

Makes Cut Mounting
the easiest job in the shop

BOOTH'S ZINK CUT CEMENT is a special, one-purpose adhesive. It holds any kind of cut to wood or metal base. Apply it sparingly—spread it evenly—then press the cut to the base using a slight rotary motion. You'll find, as thousands of users have, that this is the fastest, easiest cut mounting method known. Get a supply—use it—you'll stick with BOOTH'S ZINK CUT CEMENT.

PRICES—In the United States: 75c. per tube, $6.00 a dozen tubes, $5.00 a dozen in gross lots.

Booth's Black Rubber Rolls

Here are the "qualities" that have made BOOTH'S BLACK RUBBER ROLLS favorites with line-casting machine operators and machinists—

- Maximum resiliency
- Resistance to permanent distortion
- Greatest cam friction
- Dependable, trouble-free performance

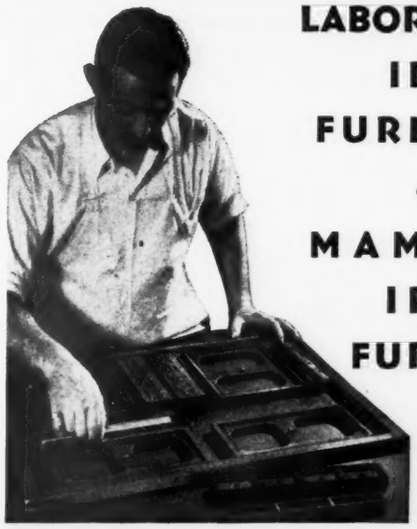
PRICES—$1.45 per pair; $7.75 per dozen.

E. A. BOOTH RUBBER CO.

MAHONING BANK BUILDING

YOUNGSTOWN, OHIO

LOWER COSTS
RAISE QUALITY with CHALLENGE



LABOR-SAVING IRON FURNITURE *and* MAMMOTH IRON FURNITURE

▼

★ Give your compositors the right kind of tools and they'll do a better job—faster. Ask the men who use Challenge Iron Furniture—you'll find it in the best print shops.

CHALLENGE

LABOR-SAVING IRON FURNITURE AND MAMMOTH IRON FURNITURE

is made of a specially selected mixture of close-grained iron, accurately machined to absolute point measures. All edges are beveled to a ***"Velvet Edge"*** to prevent denting or chipping and cutting of fingers. They are lightweight, but with stiffening ribs in each piece for added strength and to provide finger hold for rapid handling. Figures on both sides show pica sizes.

CHALLENGE LABOR-SAVING IRON FURNITURE is made in 120 standard sizes from 2x4 to 10x70 ems pica. Drilled for drainage.

CHALLENGE MAMMOTH IRON FURNITURE is made in 70 standard sizes from 15x15 to 60x120 picas. They are made especially for dressing out a large chase when locking up a small or open form. They eliminate work-ups and "springy" forms. Invaluable in book and color work for filling large spaces accurately and quickly. All pieces are adequately filleted and ribbed for strength. Write for data and prices.

566

THE CHALLENGE MACHINERY COMPANY

"Over Fifty Years in the Service of the Graphic Arts"

GRAND HAVEN — MICHIGAN

Mountains and Mole Hills

By AN OLD TIMER

LIKE Obidiah, one of the janitors said the other day, "A little mite sho can bring tribulation to a fellow's mind." Well, that's just what happened to Colonel Albert the time he got over-generous toward the metal pot of his line-composing machine. I had received a phone call from the Colonel's daughter, Pearle, asking that I please come to her father's rescue, saying: "Bill (that's Daddy's machine operator) has taken the day off to try to catch up with his drinking and Daddy is trying to run the machine himself and is having a terrible time, so please hurry as mother is afraid he'll have a stroke."

On reaching the basement of the Colonel's combined residence and print shop where he published his little weekly, *The Argus*, I saw a circle of metal like numerous silver stalagmites scattered around. In the midst of it stood his type-setting' machine and Colonel Albert, his greying hair disheveled and his pudgy face purple with rage.

Too flustrated for a salutation he blurted out: "What in tarnation has gone wrong with this confounded thing? It was alright yesterday when Bill left."

Glancing at the overflowing metal pot I says, "Take it easy Colonel, got a ladle.?"

He looked over at the corner where a negro errand boy was asleep on a pile of paper and yelled, "Mose! Mose! wake up and run up to the kitchen and tell the missus to send me the soup ladle."

After dipping the metal down to about three-quarters of an inch below the top of the crucible we cast a few slugs which showed a fair pot lockup but a porous slug. I called the Colonel's attention to this.

"That's just the reason I filled the pot so full," he said. "I thought it would improve the slug. But why should that cause back squirts?"

"For this reason," I replied, "When the metal in the crucible is standing at too high a level the metal in the throat is up near the mouthpiece. As the pot tips forward for the cast, some metal flows out through the mouthpiece and forms a film over the mouthpiece that prevents a close lockup between the pot and mold. And for the same reason," I added, "the metal flowing into the mold before the pot pump adds pressure, causes the glassy appearance of the face of the slug."

"Now, young fellow, how about the porous slugs?" he inquired.

"There are several causes of porosity in slugs," I explained. "The most common cause is improper ventage in the mouthpiece. You see, in addition to the air in the mold cell there is air in the upper throat behind the mouthpiece that must be forced out through the mouthpiece vents before we can have a solid slug. Any air that does not escape is bound to mix with the metal of the slug. We must use caution however, in providing a ventage for the escape of air lest we allow too much metal to flow out through the vents."

"Now look here young fellow. How in tarnation are you going to keep the metal from squirting out through them vents same as the air?" he asked sternly.

"Well Colonel," I tried to explain, "we do have to allow a tiny bit of metal flow through the vents at the cast but a properly vented mouthpiece should show only a slight sprue at each cast and never more than an inch in length. Colonel, hand me that broken spaceband and we'll scrape the accumulation of dross and oxides from these vents and you'll get a better slug. This should be done occasionally." I added.

"What are the other causes for porous slugs?" he inquired.

"Well, let's see. An accumulation of dross and oxides on the plunger and inside the pot well may retard the down stroke of the plunger. These should be cleaned daily. A worn plunger and pot well allows too much metal to pass up around the plunger. A worn pot cam allows the plunger to close or partly close the inlet holes to the well, preventing the metal from flowing under the

(*Continued on Page 49*)

Behind Burgess Quality

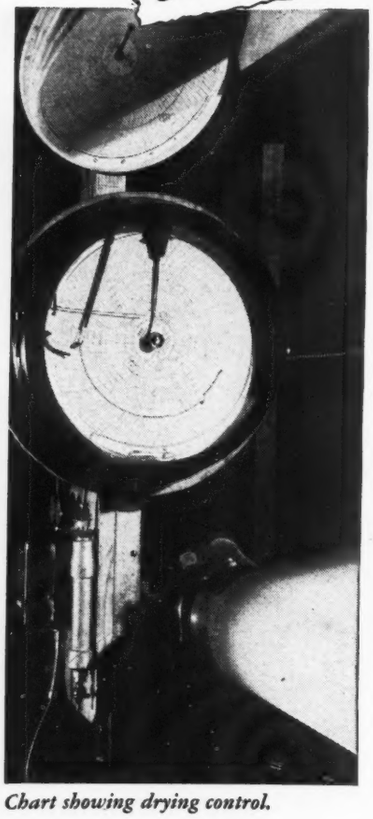


Chart showing drying control.

LABORATORY-CONTROLLED DRYING OF MATS

To make certain that Burgess Chrome Mats have, when finished, exactly the right moisture content, rigid laboratory control is maintained over the entire drying process.

When the sheets are first formed they are, naturally, extremely wet. A large part of this moisture is removed by passing them through drying machines under automatically controlled heat, but a certain percentage must be retained. This is the first step in insuring uniform moisture content—and a vitally important step. Accurate controls must be maintained, so that certain set limits are not exceeded. To that end periodic tests are made of these sheets in the production laboratory. Meanwhile automatic recording instruments transcribe another chapter in the history of these mats — a chapter which becomes a part of the permanent records.

It is this meticulous care, maintained throughout all the manufacturing processes, which assures the consistently fine quality of Burgess Chrome Mats.

A Laboratory Product BURGESS Chrome MATS

BURGESS CELLULOSE COMPANY

Manufacturers and Distributors of Burgess Chrome and Tone-Tex Mats

FREEPORT, ILLINOIS

Pacific Coast Representative RALPH LEBER CO., 426 Polson Bldg., SEATTLE, WASH.

Patents

For The Graphic Arts Field

Covering patents issued September 17, September 24, October 1, October 8.

All new patents for the Graphic Arts are reported exclusively for Printing Equipment Engineer by Invention, Inc., an industrial patent research organization in Washington. D. C. Invention, Inc., presently has the only staff in the country that examines, in the U. S. Patent Office, the complete printed copy, drawing by drawing and page by page, every one of the several hundred new patents issuing each week. Printing Equipment Engineer is the only trade publication in its field offering a report based on this complete coverage. For copies of the patents listed here specify the patent numbers and send 25c for each separate patent, or 10c for each trade mark or design patent (stamps not accepted) to the Commissioner of Patents, Washington, D. C.

Binding, Cutting, Perforating

2,407,656. PLASTIC BINDING ELEMENT for magazines, calendars, and books. From a backbone extends a number of integral fingers, one surface of which have transverse lightly scored lines making it possible to curve the fingers readily. Two more heavily scored lines facilitate a sharp bend near the backbone and near the tip of each finger. Thus the cross-section of the formed binding element is arcuate with a flat bottom something like the cross-section of a "Quonset Hut." By applying a pressure-sensitive adhesive to the edge of the backbone, the binder can be secured to the book without any additional binding element and without the aid of machinery. Invented by Charles Edward Emmer, Chicago, Ill. Assigned to General Binding Corp., Chicago, Ill. Application October 9, 1943. 6 claims.

The four weekly patent issues within the period of this report did not contain any new patents for the classification "Composing Room Equipment" or for the classification "Feeding, Folding and Delivery."

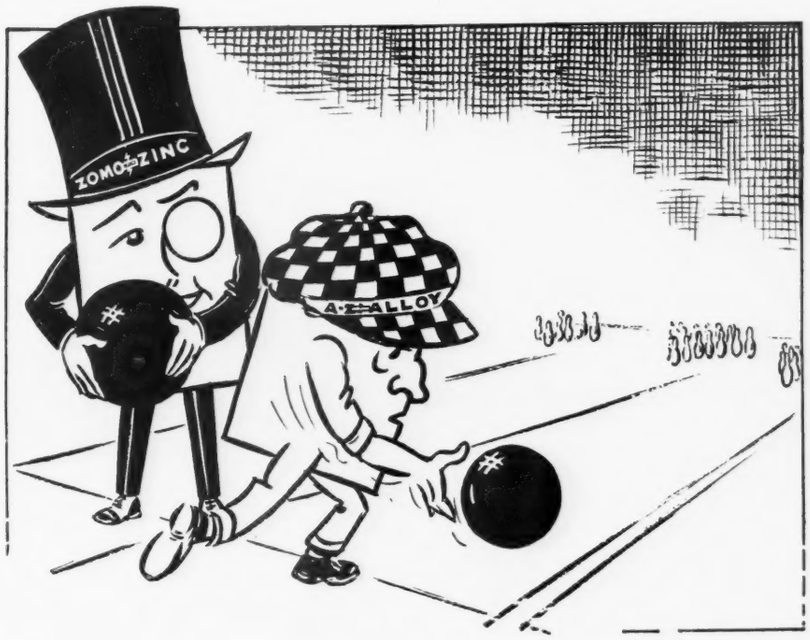
Plate Making

2,408,576. COMBINED ELECTRONIC AND MECHANICAL RADIANT ENERGY CONTROL CIRCUIT which may be used for measuring and controlling sources of radiant energy for securing therefrom an integrated quantity of light necessary to produce proper photographic exposure in various industries, such as photoengraving, photolithography and the graphic arts in general; also the exposure of materials to X-rays, and for related applications. The device measures exact quantities of radiant energy by integrating fluctuating radiant energy intensities (due chiefly to line voltage fluctuations) and automatically varies the duration of time to compensate for the fluctuating intensities. It will automatically control a magnetic shutter on a camera, or a magnetic switch, etc. Invented by Clarence S. Ost, Atlantic City, N. J. Unassigned. Application July 14, 1945. 4 claims.

2,408,855. IMPROVED IMAGE REVERSER FOR STRAIGHT LINE CAMERAS used in photomechanical processes for making printing plates. Unit comprises a carrier frame and an image reversing element mounted in the frame, the latter being shaped like a disc so it can be rotated in the plane of itself to position the image reverser reflecting faces angularly with respect to the lens. The image reverser proper is a prism whose faces are coated with opaque material to trap any light rays entering through the faces. Prism is mounted in an assembly of interfitted blocks which form a cage. The prism assembly is held in the carrier frame by four radially disposed screws, 90° apart, which can be used to adjust the prism accurately with the optical axis of the lens system. Invented by William C. Huebner, New York, N. Y. Unassigned. Application February 14, 1945. 4 claims.

Printing Inks and Related Chemicals

2,407,689. PROCESS FOR PRODUCING INDENE TYPE HALOESTERS as new compositions of matter and for plasticizing an organic substance thereby. Rubber, for instance, may be plasticized. The compositions are also useful in making clear, light amber lacquers for metal or paper, as well as being adapted for use as addition agents



WINNERS EVERY TIME

Yes, these metals are great performers. In any league or against any competition they win highest approval.

For Zomo Electric Zinc and A-Z Alloy are *right* . . . from essential ingredients to their splendid machine-cut finish.

Melted and cast in the electric induction furnace, precision rolled and laboratory tested, these plates supply the perfect foundation for a modern engraver's time and skill.

Zomo Electric Zinc and his tough, rugged side-kick, A-Z Alloy, are obtainable from leading engraving metal suppliers.

ZOMO ELECTRIC ZINC ◆ A-Z ELECTRIC ALLOY

to soaps. Invented by Frank J. Soday, Baton Rouge, La. Assigned to The United Gas Improvement Co., a corporation of Pennsylvania. Application February 12, 1944. 10 claims.

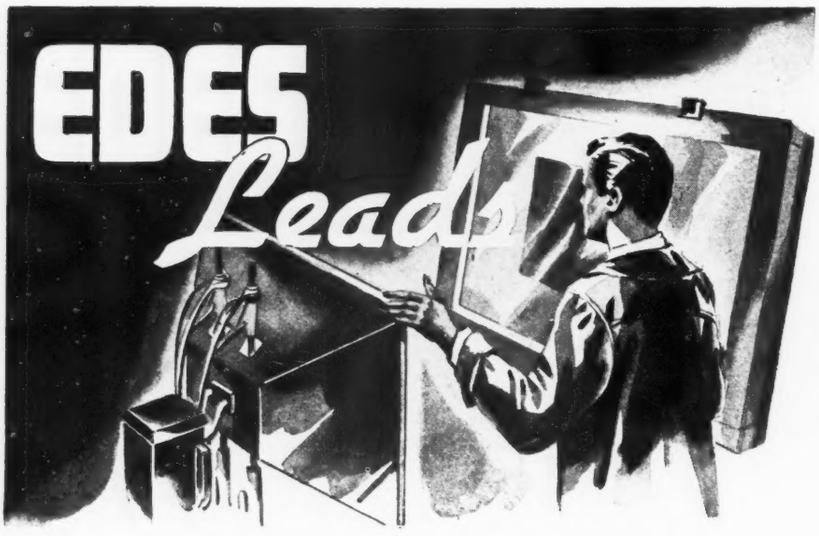
2,407,766. MODIFIED ALKYD RESINS of the type that have entered into widespread use in lacquers and other coating compositions, in the impregnation of fabrics, wood and paper, in bonding and adhesive compositions, and in modification of other resins, etc. The modified resin of the invention includes as a modifying agent certain acidos derived from partial oxidation of lubricating oil fractions and having at least one naphthenic ring per molecule. The feature of this agent is that it not only serves as a modifier but also as a substitute in part for the glycerol used in preparing the resins. Invented by John Harold Perrine, Prospect Park, and Herbert L. Johnson, Norwood, Pa. Assigned to Sun Oil Co., Philadelphia, Pa. Application September 3, 1943. 6 claims.

2,408,326. PROCESS FOR PREPARING ALKALI-SOLUBLE METHYL CELLULOSE excellent for textile sizing and textile printing compositions. This is formed by the methylation of alkali-cellulose. For example, 27.5% to 45% concentrate alkali metal hydroxide solution in the amount of 0.35 to 0.60 part by weight of cellulose is absorbed into the cellulose at 15 to 35 degrees C. It is then treated in a closed system at 35 to 75 degrees C. with a methyl halide. Methyl cellulose is formed which is dissolved almost completely in 3% to 4% NaOH at 15 to 20 degrees C. Dilution with equal parts of water will not precipitate the methyl cellulose. Invented by Albert T. Maasberg, Huntsville, Ala. Assigned to The Dow Chemical Co., Midland, Mich. Application April 26, 1944. 2 claims.

2,408,421. WATER INSOLUBLE AZO DYESTUFFS containing an N-morpholino-arylide group. As disclosed in this patent they are particularly valuable for printing on fiber and generally yield orange to blue and brown shades. The new dyestuffs may be obtained by coupling in the usual manner in substance, on the fiber or on a substratum adapted for the production of lakes, diazo compounds of aromatic amines with arylides of orthohydroxy carboyylic acids in which the aryl radical to which the nitrogen atom of the amida group is attached is substituted by the morpholine group. The presence of this group renders the arylides easily removable from the unprinted areas of goods padded therewith. Invented by Harry Wilhelm Grimmel, Easton, and Alfred Guenther, Riegelsville, Pa. Assigned to General Aniline & Film Corp., New York, N. Y. Application October 19, 1944. 6 claims.

2,408,608 and 2,408,609. CHLORINATED RESINS, from which clear, transparent lacquers and films are obtainable, are the products of these two patents. One polymeric product of patent 2,408,608 is made by chlorination of a copolymer of vinyl chloride and vinylidene chloride containing from 10% to 95% by weight of vinyl chloride with the remainder being vinylidene chloride. Another example, in patent 2,408,609, is made by the chlorination of a copolymer of vinyl chloride and trichlorethylene prepared by copolymerization of a monomeric mixture of 1% to 5% of trichlorethylene and vinyl chloride. These products have high resistance to darkening at elevated temperatures. Invented by Oliver W. Cass, Niagara Falls, N. Y. Assigned to E. I. du Pont de Nemours & Co., Wilmington, Del. Application May 24, 1943. 2 claims.

2,408,961. VALUABLE POLYAZO METALLIZABLE DYESTUFFS, particularly trisazo dyestuffs, may be obtained if 1:30-dihydroxynaphthalene is used as twice coupling component and if agents yielding metal are caused to react with the dyestuffs thus obtained. The dyestuff products are usable for dyeing and printing wool, silk, and particularly leather. When using substantive components, diazo and principally polyazo dyestuffs are obtained, which are predominately useful for cotton, linen, rayon, etc. The process for the manufacture of triasazo dyestuffs comprises coupling 1:3-dihydroxy-naphthalene with one molecular proportion of diazotized 2 - amino - 1 -hydroxy-4-sulfamide and further with one molecular proportion of the diazo-azo compound obtained by one-sided coupling of tetraztotized benzidine and salicylic acid. Invented by Fritz Straub, Kaiseraugst, near Basel, and Jakob Brassel and Hans Mayer, Basel, Switzerland. Assigned to the firm Society of Chemical Industry in



IN THE PRINTING FRAME

The marked superiority of Edes photoengraving zinc is instantly apparent in fine line, screen or half-tone work. The accuracy of gauge, or uniform thickness of this metal, most closely approaches the absolute and permits tightest contact between negative and flat in the printing frame. This results in clean, sharply defined lines and halftone dots. Distortion is limited only to that inherent in the negative. Your finishing time is materially reduced. Later, your customer is saved a lot of unnecessary make-ready. Use Edes zinc — Regular, for most requirements, and Hard Matrix, for matrices and heavy duty.

Edes
MANUFACTURING COMPANY
PLYMOUTH, MASS. U.S.A.

EDES ENGRAVING METALS
Regular Zinc
Hard Matrix Zinc
Triplemetal
Copper
Brass
Gravure Sheets

REPRESENTATIVES

CHEMCO PHOTOPRODUCTS CO
New York, Atlanta, Dallas, Chicago, New Orleans, Boston

ALLAN B. CROKE CO.
Boston

W. OLIVER TRIPP CO.
Boston

C. S. ILLINGWORTH
Buffalo

MRS. S. H. CLARK
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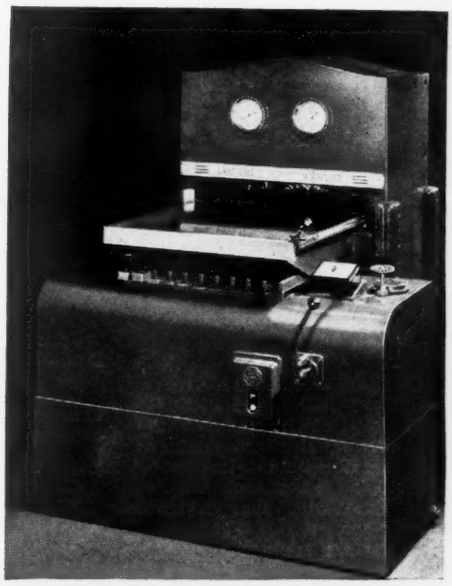

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Wins Honorable Mention as Leading Trade Association—H. B. McCoy, Director of the Office of Domestic Commerce, U. S. Department of Commerce, presenting the Certificate of Merit of the American Trade Association Executives to Printing Industry of America, Inc., as an award for distinguished service for the year 1945-1946, the first year of PIA's operation. James R. Brackett, general manager, is receiving the award for PIA. This award was presented at the Cleveland convention of ATAE on October 11, 1946.

Basel, Basel, Switzerland. Application September 10, 1943. In Switzerland September 2, 1942. 6 claims.

2,409,127. QUINONYLAMINO-N-ALKYLENESULFONIC ACIDS AS PRINTING AIDS particularly useful with paste or powder vat dyes are obtained from the anthra-quinonylamino-N-alkylenesulfonic acids and their soluble monovalent alkali salts, the alkylene group being a short chain. The printing color pastes are applicable to textiles and paper for decorative and protective purposes. This assistant is found to produce a satisfactory color intensification and does not cause deterioration of the printing composition on standing. Invented by Roy Herman Kienle and Chester Albert Amick, Bound Brook, N. J. Assigned to American Cyanamid Co., New York, N. Y. Application July 1, 1943. 8 claims.

Printing Presses and Equipment

2,408,143. APPARATUS FOR MULTICOLOR PRINTING WITH ELECTROLINES OF FORCE in which ink is applied to the cylinders of a printing couple having the desired printing images thereon and then jumps from the cylinder to the print-receiving material, which may be a sheet or web of paper, textile or metal. Areas of each of the cylinders are passed successively through two fields of magnetic, electrostatic or electronographic force so arranged that the lines of force, at one field, are effective in a direction toward the image-provided printing plate of a cylinder to apply the ink thereto and, at the other field, the lines of force are effective in a direction away from the image-provided surface and toward the print receiving material. The image cylinder rotates between an ink discharge blade and an ink-attractive blade connected to a source of high potential electric energy. The cylinder is insulated from each blade and bears image-areas permeable to the lines of force and non-image areas which neutralize the lines of force. The ink may be of any composition. If the ink containes magnetic material responsive to magnetic lines of force, brass may be used for the non-image area. If electrostatic or electronographic lines of force are used, the plates may be copper and a chemical compound may be used for the non-image areas. The ink is drawn by the induced lines of force from the ink discharge blade to the attraction blade and thus to the outer surface of the plate on the cylinder as the latter is rotated between the two blades. The image surface may be formed in accordance with the type of printing desired, but the invention has particular utility for intaglio or planographic printing. The print receiving material is carried by an endless belt to the several printing stations and is driven independently of, but in timed relation with, the plate bearing cylinder. Invented by William C. Huebner, New York, N. Y. Unassigned. Application January 15, 1944. 9 claims.

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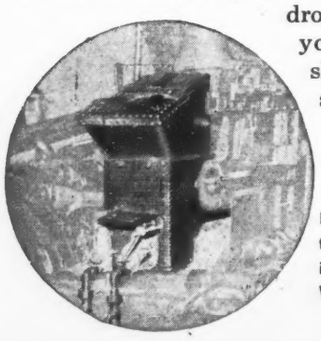

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2,408,144. ELECTRO LINES OF FORCE ACT TO TRANSFER INK in the apparatus of this patent application that was filed together with the application for the preceding companion patent, No. 2,408,143. Here a field of electromagnetic force is concentrated and confined to the pressure printing line of ordinary contact pressure printing so that a narrow printing zone is created which results in an improved reproduction of the image on the print receiving material. The means for inking the successive image areas and the means for impelling the ink from such areas to successive print-receiving areas are located in a gap between two elements from which they are insulated, the elements being connected to a source of high potential electric energy whereby the energy passes across the gap between the elements and through the inking means and print-receiving material to the successive material areas to print the image on the material. Invented by William C. Huebner, New York, N. Y. Unassigned. Application January 15, 1944. 11 claims.

2,408,449. FLUID FOUNTAIN that is said to solve the problem of distributing ink and ink repellant over the face of a plate in relation to the densities of the printing and non-printing areas. An ink repellant spray gun moves back and forth across the print-ink plate. A deformable cam plate with a cam follower serve to vary the amount of repellant supplied. The contour of the cam surface of the deformable plate is correlated to the density of the non-printing areas of the printing plate. Consequently the quantity of water delivered to the dampening roll by the spray gun is likewise correlated. Sensitivity of the gun to rearward movement may be controlled by the shape of the point of the needle and its seat. Invented by George M. Russell, Millbrae, Calif. Assigned to Pacific Can Co., San Francisco, Calif. Application September 13, 1943. 6 claims.

2,408,504. PAPER-WEB COATING MACHINE is particularly suited for applying lacquers in solution in volatile solvents. The greater part of the mechanism is retained in a tank to avoid loss of the solvent. It has a draw roll and a doctor blade adjacent to, but spaced from, the surface of the roll. A web of paper is stretched over the cylinder and moved with it at a tangent to the blade edge. The coating is applied at the blade, the amount determined by the angular adjustment of the blade. At the edge of the roll side pieces confine the coating to the roll. The machine may be used with a bag-making apparatus and other equipment. Invented by Samuel Bergstein, Cincinnati, O. Assigned to Robert Morris Bergstein and Frank David Bergstein, as trustees. Application September 14, 1944. 14 claims.

For Patent Research in the U. S. Patent Office, or a prompt estimate on any type of search, address INVENTION, INC., Munsey Bldg., Washington, D. C.

Mountains and Mole Hills

(Continued from Page 44)

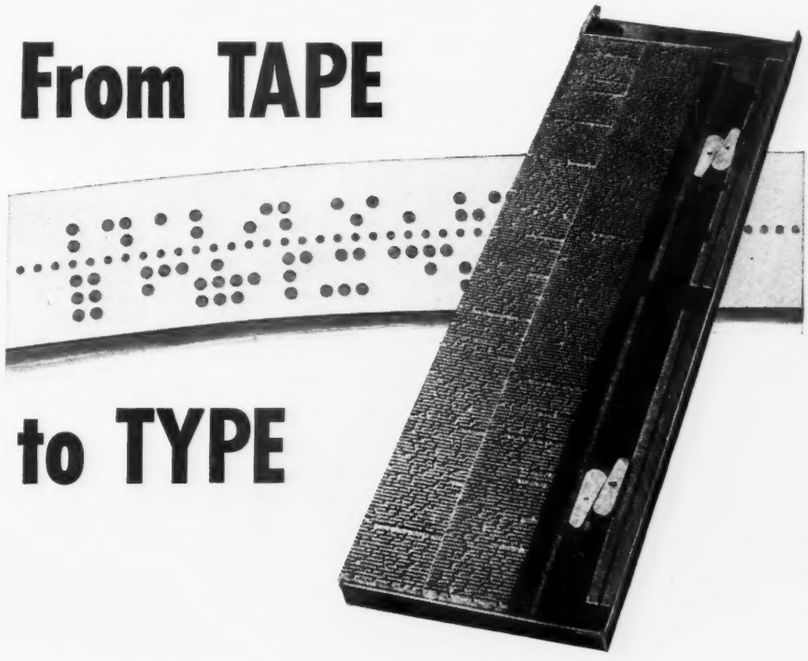
plunger after each cast. Dross or antimony may accumulate behind the mouthpiece sometimes. This requires the removal of the mouthpiece for cleaning the throat or, dross or oxides may form in the mouthpiece holes which necessitates the reaming of the holes, being careful not to enlarge them. There may be other causes for porous slugs, Colonel, but that's enough for this time."

"Young man," exclaimed the old Colonel with a twinkle in his eye, "you have saved me from exhausting the remainder of my vocabulary of abusive language on this confounded machine and son, there's a little box of fudge candy over there on my desk you may take along with you. My daughter Pearle made it. She allowed I might mention that."

"Thank you, Colonel, and now I will go up and thank the daughter for the fudge."

I think I heard the man chuckle as I mounted the stairway.

From TAPE



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Need of Care for Advanced Cancer Patient

By Dr. GEORGE T. PACK*

**Chairman of the Medical and Scientific Advisory Council of the National Cancer Foundation.*

One of the most urgent public health problems of the day is the need of hospital facilities for the treatment and terminal care of the innumerable patients who have incurable cancer. General and special hospitals in the United States are already taxed beyond capacity to care for acute and subacute diseases and it will be several years before they can accommodate the number of people who need hospital care of even short duration. These hospital rooms and beds, so constantly occupied, cannot readily be turned over to patients with chronic disabling diseases such as cancer. People with advanced cancer may require continuous nursing and medical attention for several months or even several years.

There are very few institutions in our country that provide care of this nature and it is pitifully inadequate. The average home is not prepared to accommodate itself to the months of invalidism involved when one of its members becomes afflicted with cancer beyond hope of control. Another important handicap is that cancer is an impoverishing disease, due to the inevitable financial burden of months of home care.

The healing and cure of patients with tuberculosis can be accomplished with greater certainty by confinement in special sanatoria. These advantages have been universally accepted. The professional care of the patient with cancer is infinitely more difficult. It is surprising citizens have not taken action to stimulate by local, state and federal means, hospital provisions for the cancer patient.

The purpose of voluntary hospitalization of the advanced cancer patient is not solely to relieve any home or family of a difficult social and financial burden, but more important still, to do something for the unfortunate patient. Special hospitals for this purpose will be equipped with X-rays and radium laboratories, operating rooms, neurologic facilities for the relief of pain, expert and constant nursing and professional care that many of these patients will be salvaged and all of them will be helped.

It is the physician's responsibility and desire to do everything possible for the terminal cancer patient, but he should be provided with the hospitals and equipment to make this possible.

History of Printing

The Printing House of Leo Hart, Rochester, N. Y., has planned to publish a series of books called the Printers Valhalla. The first of the series will appear in late 1946. It will be devoted to individuals whose career contributed to the development of bookmaking during the 500 years of typography.

The group is edited by George Parker Winship and is based on a series of lectures on the History of Printing given at Harvard.

Four volumes are now in the preliminary stages of publication. The first, written by Mr. Winship is devoted to the late Daniel Berkeley Updike. This will be followed by an account of Isaiah Thomas, who printed from before the American Revolution until the war of 1812. Other books are on Gregory Dexter, a London printer of 1640; and Peter Schoeffer, an associate of Gutenberg.

Other books planned in the future include William Caxton and William A. Dwiggins.

Each volume will concern an individual whose achievements entitle him to a place of honor among the makers of books.

The series is sponsored by Horace Hart and written primarily for readers who are actively engaged in the various aspects of the graphic arts. Each volume will have about 25 illustrations and 100 pages of text. Price, $3.50 each.

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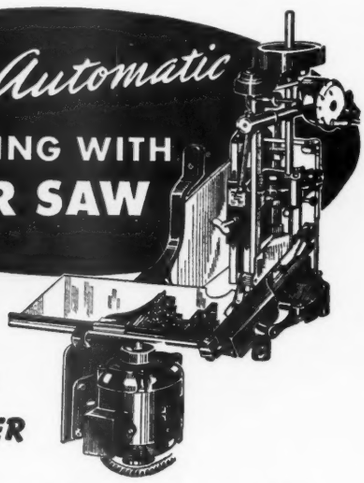

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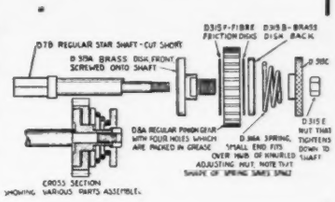
STAR WHEEL FRICTION
for the Linotype Machine

is a necessity for precise assembler adjustment.



EVERY machinist knows that he must adjust the Star Wheel Tension on each machine to fit the requirements of the machine, if he is to have his Matrices fall into the assembler properly.

The STAR Adjustable Star Wheel Friction has been improved to make even smooth assembling:

First, by the addition of hard fibre Friction Disks as braking surfaces that will wear considerably longer.

Second, by the extension of the Star Wheel Shaft through the assembly to accommodate a nut that will prevent the Knurled Adjusting Nut, (D-315D) from being backed off.

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St. Petersburg (Fla.) Firm is Aggressive

Many commercial printing plant executives throughout the country could very well adopt the aggressive methods employed by Ben Granger, Executive Vice President and General Manager of the St. Petersburg (Fla.) Printing Co., Inc. Recently, the firm took a 4 col. by 10¾ in. display advertisement in one of the St. Petersburg daily newspapers. The advertisement informs printing buyers that the St. Petersburg Printing Co. is using the air freight facilities of U.S. Airlines, Inc., for quick shipments. These shipments, obtained through overnight service from New York, consist of fine papers, ink, repair parts, printing plates, electros, and the like. This Florida firm specializes in high quality color printing.

Appoints Service Dealers

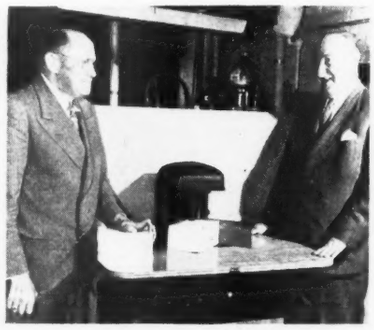
Miehle Printing Press & Mfg. Co., of Chicago, announces appointment of new service representatives in the Missouri and Minnesota areas. Western Printing Machinery Co., 511 Delaware Street, Kansas City, Mo., is the authorized Miehle dealer for Western Missouri and Kansas. The E. C. Edlund Co., 251 Third Avenue South, Minneapolis, Minn., is the authorized Miehle service dealer in Minnesota and adjacent areas. Both companies will erect new presses and handle service and repair work. Repair parts will be carried in stock.

Management Booklet Available

The George S. May Co. has published in color a 16 page booklet entitled *What's Wrong with Business?* The subject is discussed from the management engineer's viewpoint, outlining the fundamentals of business structure as: methods; layout; job appraisal; personnel appraisal and instruction; and compensation.

A specimen functional analysis chart is given showing the direct and indirect functions of a business.

A copy of the booklet may be obtained by writing the George S. May Co. or to *Printing Equipment Engineer.*



Melville C. Cole, president, Southworth Machine Co., Portland, Me., standing at left of Southworth motor-driven Corner Cutter with D. W. Schulkind of E. P. Lawson Co. Machine will be on market soon.

NAPL Convention

(Continued from Page 19)

ready proofs, from which you make negatives and positives, for use on offset press plates. The added expense and delay is a bottleneck."

Mr. Huebner then enumerated a number of new developments for the trade, among which are: *One-shot one-plate four color cameras*; *Colorvalnuematchers*; *Straight line image reversing cameras*; *Page Making equipment and processes* for newspapers, magazines and books; *Phototextype composing machines*; *Short-run multicolor rotary proof presses* with 19 in. by 25 in. work area, replica of the large edition presses; *Cylinder making equipments*; *Unified printing presses*, 45 in. by 52 in. 6-color perfecting for printing all useful processes: roto relief, roto dry offset, roto photo gravure, roto photo gelatin, roto screen expulsion.

The speaker stated that the foregoing equipment offers a standardized new start in printing, utilizes all good processes in one photo-mechanical and one unified press equipment. He said the first to make the new start is the magill-Weinsheimer Company of Chicago. A complete new equipment is being built to order. The new start will be made

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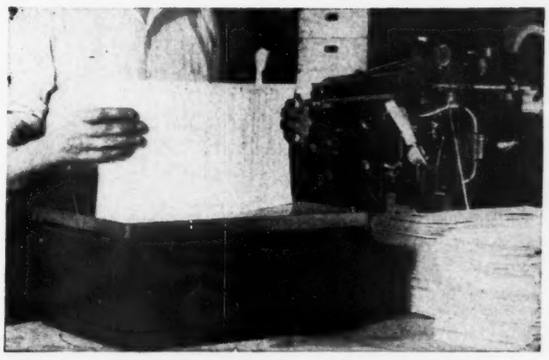

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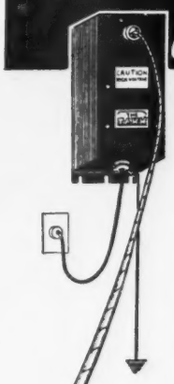

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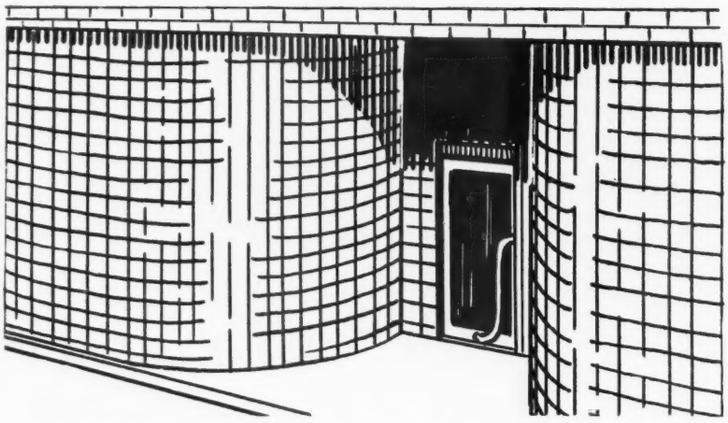

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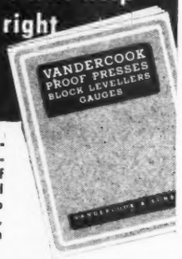

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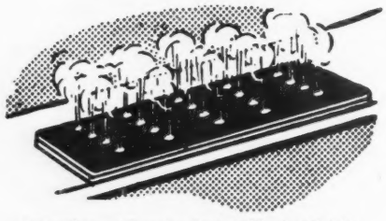
Important where considerable shrinkage is employed



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Equipment and Supplies Session

ON Friday morning, October 4, a number of executives of equipment manufacturers and suppliers discussed the *Equipment and Supply Outlook*. All of the talks were more or less general in nature and can be summed up by stating that manufacturers are making some deliveries, the material shortage is critical, prices will be higher, the demand for equipment is tremendous, labor difficulties are most annoying and production is curtailed, the backlog of orders is high, and the industry will change many of its present methods because of new methods and techniques learned during the war.

The following men took part in the Manufacturers' Symposium: Fred W. C. French, Lanston Monotype Machine Co.; Carl Mellick, Miehle Printing Press & Mfg. Co.; H. A. Porter, Harris-Seybold Co.; C. W. Dickinson, R. Hoe & Co.; Charles E. Cosby, Mallinckrodt Chemical Works; G. J. Farmer, Ralph C. Coxhead Corp., and K. W. Burchard, American Type Founders.

Below we are presenting summaries of the talks made by a number of equipment manufacturer executives.

Porter Reports Doubled Production

Production of Harris presses and Seybold cutters is rapidly approaching a volume of at least two times prewar, according to H. A. Porter, vice president in charge of sales for Harris-Seybold. Mr. Porter stated: "Substantial shipment volume of new as well as prewar models is now being attained despite the most restrictive manufacturing conditions ever experienced. Several hundred Harris presses and Seybold cutters were produced and shipped in accordance with the Harris-Seybold purchase proposal plan."

"To increase over all volume production of presses and cutters," said Mr. Porter, "Harris-Seybold assigned the manufacture of small presses to the Seybold Division, and completed the sale of the Morrison stitcher business to Acme Steel of Chicago.

The first move enabled the Harris Division to concentrate its facilities on the production of the larger size Harris presses. Dayton and Cleveland engineers had worked together for many months on the development of the new line of 17 x 22 and 21 x 28 Harris offset presses; foremen and supervisors of the Seybold Division were trained at the Cleveland plant. For the first time in the history of the company, offset lithographic presses are going to be manufactured completely at the Seybold Division."

The sale of the Morrison business, made necessary by changing market demands, released production facilities, engineering, and supervisory time for work on cutting machines and small presses, according to Mr. Porter.

The four year recess in the manufacture of graphic arts machinery has created new problems of customer relations between Harris-Seybold and the Graphic Arts and related industries. Mr. Porter pointed out that equipment is being operated now which would normally have been replaced in an orderly manner during the war years. The effect of the cumulative demand is aggravated further by the hard use equipment received and is receiving

The Harris-Seybold sales and service organizations has been enlarged, according to Mr. Porter, to keep pace with the expanding output of the Dayton and Cleveland factories and to implement direct service on Seybold products which were formerly sold and serviced through dealers.

Mr. Porter stated: "The lithographic industry is embarking on what may

Larger Presses Planned

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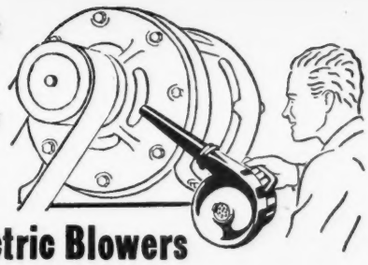

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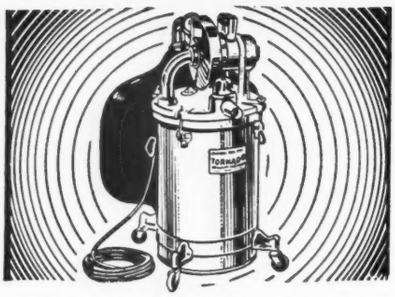

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The machine uses more than 600 different styles and sizes of type, plus foreign languages, special chemical, library, tariff and mathematical signs, operated from a keyboard similar to that of the standard typewriter. Automatic justification produces copy, with an even right-hand margin, controlled by a dial near the center of the operator's vision. Type is quickly changeable, as is spacing of the characters to the lineal inch.

The vertical carbon ribbon attachment feeds a new section of carbon for each impression, for photo-offset reproduction or direct-to-plate duplication.

ATF Representative Says Outlook is Good

Kenneth R. Burchard of American Type Founders, discussed his company's plans and preparation for the postwar period. He said: "Except for some slight changes in design and materials to improve efficiency and performance, offset presses follow the same models previously issued. Production is gradually catching up, however, and we expect to be at full peak within a few more months.

"We have purchased the camera and platemaking business from Valette in Chicago. We are now producing our standard camera units in quantity. Future deliveries on orders placed now will probably run in the neighborhood of 5-6 months after receipt of order.

"In addition ATF is just getting in to production on a new line of color precision cameras. These cameras are designed for lithography, photo-engraving, gravure, or other photo-mechanical operations requiring apparatus of large size or precision in color process work, or for templet, plan and mapping reproduction.

"At first, in order to aid production, we are planning on manufacturing the 31 in., 40 in. and 48 in. sizes and will consider other sizes if there is sufficient demand.

"The outlook, in general," concluded Mr. Burchard, "may be said to be good and ATF will do everything possible to supply needed equipment at the earliest date."

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MATERIALS HANDLING—By Harry E. Stocker. This book is of vital interest to mechanical and production executives in printing and publishing plants. While not written specifically as a treatise on materials handling in the printing plant, yet a great deal of its text will be of value in the handling of materials in the plant and out-going shipments from the plant. Bound in light buckram, 309 pages, many illustrations, size 6 in. by 9¼ in. Price $5.00.

READING AS A VISUAL TASK—By Matthew Luckiesh, D.Sc. and Frank Moss, E.E. Most important research work to have been published in many years. For printers, designers, publishers, typographers and layout men. Readability of type, type faces, length of line, leading between lines, paper, ink, printing method and lighting are some of the factors involved in ease of reading. Size 5½ in. by 8⅜ in., 428 pages, bound in maroon gold stamped cloth. Price $5.

STANDARD BOOK ON ESTIMATING for PRINTERS—By Fred W. Hoch. Revised 1941 edition. This book is a primer for students and a reference for printers and estimators. Every printing plant should have a copy. Author explains all operations in commercial printing plant and shows production time allowance for each in hours and decimal hours. Size, 6 in. by 9¼ in., 268 pages, $3.75.

PRINTING INKS—Their Chemistry and Technology—**By Carleton Ellis.** Bound in cloth, 6 in. by 9½ in., 560 pages, well illustrated. For printing executives, pressmen, photo-engravers, plate-makers, ink manufacturers, chemists, paper-makers. Author stays close to printing plant. The solving of new production problems brought about by technological improvements, both in equipment and inks, created the urgent need for this book. Price $7.75.

GRAVURE

PHOTOGRAVURE—By H. Mills Cartwright. Covers all of photogravure's basic principles in concise and readable language. Rotogravure receives minor discussion but this is generally considered best textbook on photogravure process. Contains 202 pages, 34 illustrations, maroon cloth, size 6¼ in. by 9¼ in., $3.50 per copy.

STEREOTYPE

MANUAL OF STEREOTYPING—By Joseph Goggin. This 256-page book conveys technical information and manipulating procedure. Written by a practical stereotyper. Price $5.00.

OFFSET-LITH

LITHOGRAPHERS MANUAL—Compiled by Walter E. Soderstrom. Second revised edition. Technical information from copy to finished job. Nationally known technical men contributed the bulk of practical camera, platemaking and presswork information. Size 8½ in. by 11¼ in. Bound in red cloth, gold stamped. Many of the 368 pages are illustrated. Price $5 per copy.

THE SINGLE COLOR OFFSET PRESS—By I. H. Sayre. The purpose of this book is to offer a detailed technical explanation of the operation of the small single color offset printing press. It also carries recommendations for approved methods of printing technique and press care which apply to all offset printing. Much of the technical operating information applies to all makes of small offset presses.

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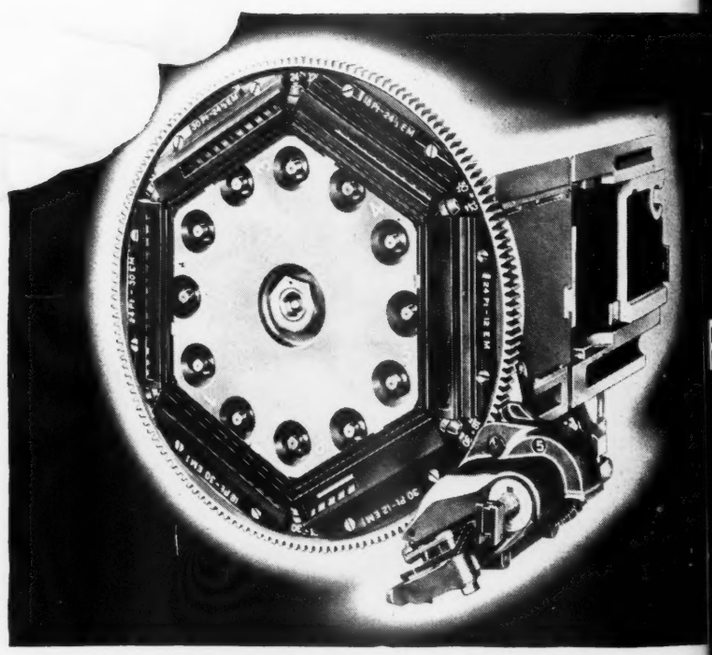

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